Telephony

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H. D. FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary
H. D. FARGO, Jr., Vice-President and Advertising Manager
D. C. SORENSEN, Western Advertising Manager

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An Important Telephone Rate Case—Emile Berliner's Fame

There is much food for thought in the order issued by the Louisiana Public Service Commission disposing of the long pending Shreveport telephone rate case. Both telephone companies and city executives who, for political effect, fight rate increases regardless of hard facts will find much of interest in the commission order, and, perhaps, a guide for future action.

Because of local conditions Shreveport has the lowest telephone rates in the United States for cities comparable in size, as it did not participate in the general advancement during the war. The commission has decreed that they shall be advanced September 1 in justice to the company which has been showing a return of less than 4 per cent on the investment.

The blind antagonism of politicians in fighting service corporations is revealed when it is shown that although the accountant retained by the city admitted this meager return, the opposition to the new rates persisted in the fight and ignored the fact that continuance of the old schedules meant the virtual confiscation of the property.

The commission, however, refused to sanction such confiscation and authorized the new rates that will yield a return of 6.76 per cent on the actual investment. It is significant that the Louisiana commission cited the U. S. Supreme Court decision in the famous O'Fallon case, which requires that reproduction cost of a utility at the time of the inquiry must be given consideration.

An important angle of the Shreveport case—which was hanging fire for three years—is the decision of the commission to put the burden of rate advancement upon business telephones. During the hearings bankers and business leaders had helped the company's case by testifying that business capital invested in Shreveport should earn not less than 8 per cent. Therefore, they had no ground to object to rates that would give the telephone company the 6.76 per cent contemplated by the new schedules.

* * * *

In explaining why it placed most of the burden on business telephones, the commission said:

"As to the distribution of the increase, we have thought it proper to place a somewhat greater proportion of it upon the so-called business telephones. It seems to be the practice of regulatory bodies, and we deem it an entirely proper practice, to place the burden of increase in utility rates, within reasonable limitations, upon those who are best able to bear it.

"It is true that under all telephone rate schedules a differential is added to rates for business service, for in the very nature of things the demand upon a telephone utility for service is far greater on the part of business houses than is the demand from residence stations; but traffic checks indicate that the calls originating at and destined to business telephones are increasing in a far greater ratio than applies to residence service. Both of these factors we think establish the propriety of giving the business telephones special treatment."

Emile Berliner

The death of Emile Berliner in Washington recently calls to mind the fact that the telephone after all is a mere infant so far as age is concerned. Considering the prominent part it has played in modern life, and its remarkable development in America, the present generation naturally thinks of the telephone as an "old-timer," contemporary of the railroad and the telegraph. However when we hear that Berliner, the inventor of the transmitter used today, has just died, only 79 years old, we realize that the telephone is a comparative youngster.

It has been said that while Alexander Graham Bell was the inventor of the telephone Emile Berliner was its perfecter. It was the Berliner loose contact transmitter that made what was first called "a toy" a great commercial success.

At the Philadelphia Centennial Exposition in 1876, where the telephone made its first real leap into fame, it astonished the world because it "talked"—because it received spoken words—but it wasn't much of a success as a transmitter of messages. The Berliner transmitter supplied this need and made possible the telephone's tremendous commercial development.

* * * *

Pioneer telephone men will recall the bitter fight that raged between the Inde-

pendent and Bell interests over the Berliner patent. He had filed his application for a patent on his transmitter in 1877, but the patent did not issue until 1891, at which time it was disclosed he had sold it to the Bell company.

From 1894 until 1903 litigation instituted by the government regarding this situation dragged along, and the issues raised figured prominently in the warfare between the two telephone groups during the era of competition. The battle involved two presidents of the United States—Harrison and Cleveland—and even back in those days, when Big Business knew no limit in gaining its ends, the telephone fight held the center of the stage.

The result gave the Independents entrance to the telephone industry, and their activity greatly stimulated the development of telephone service. Both groups give Berliner credit for the practical transmitter as used today, and, incidentally, both sides must concede that each has contributed much to the advancement of the telephone as a necessary help in the business and social life of today.

* * * *

The passing of an inventive genius like Emile Berliner, whose study of not only telephony but various branches of electricity has meant so much to the human race, received some notice from the newspapers, but surprisingly little after all, considering what he accomplished. His career was given lines where homerun-hitters, endurance fliers and movie stars are given columns. It's a funny world—according to the sensational press.

While scientists and inventors spend their lives trying to solve the great secrets of nature the general public ignore their work and give the greatest applause to the popular freaks that seek and get the lime-light. Maybe this is just as well, as it leaves the scientists and inventors the seclusion they need to carry on their work. Edison, for instance, probably would not have achieved as much as he has achieved if reporters and publicity agents were constantly at his elbow.

Fortunately, the real workers of the world are content to labor at their tasks without the attention of brass bands. However, they deserve more recognition than they usually receive when their work is ended and they pass to the beyond.

COMING CONVENTIONS

United States Independent Telephone Association, Stevens Hotel, Chicago, October 22, 23, 24 and 25.

Independent Pioneer Telephone Association of United States, Stevens Hotel, Chicago, October 24.

Illinois Telephone Association, Springfield, Hotel Abraham Lincoln, November 20 and 21.

Better Contacts in the Business Office

Telephone Contacts Between Commercial Employes in Telephone Business Offices and Patrons—Three Major Contacts Which Companies Have With Their Subscribers—Third Award Commercial Department, TELEPHONY'S Contest

By Harry E. Eldridge,
Suburban Division Commercial Manager, Illinois Bell Telephone Co.

Probably more has been accomplished during the past few years in improving the various types of contacts between telephone subscribers and telephone employes, than in all previous years put together. Each department of every telephone company has its own definite responsibilities in connection with its subscriber contacts; and it is a matter of record that wonderful strides have been made throughout the industry generally in analyzing and improving these contacts.

This article, however, has to do only with contacts between commercial employes in our telephone business offices, and our patrons.

Just as the information operator, the supervisor, the recording operator and the repair clerk are in a strategic position to build good will for the company, so also do the telephone business office employes in their daily contacts with subscribers have countless opportunities for making and holding friends.

Much time, thought and money have been expended in advertising, pamphlets, talks, telephone demonstrations, etc., in order to bring about a better understanding of telephone problems, particularly in connection with the proper use of the telephone on the part of telephone users.

Would it be too much then for the public to expect us, as telephone people, to practice what we preach? Is it not a fact that we, as telephone employes, should be veritable artists in the proper use of the telephone? Specialists in any line of business should be the "last word" in efficiently demonstrating their own particular work or product.

Now, as all commercial employes know, there are three major contacts which we have with our subscribers:

1. Correspondence contacts,
2. Face-to-face contacts, including counter and other face-to-face contacts of various kinds—and last but not least—
3. Telephone contacts.

All dealings with subscribers must necessarily be carried on in one of these three ways.

The subject of "good business office correspondence" has been covered on numerous occasions in splendid articles which have appeared in TELEPHONY and other publications; this is also true in the case of "face-to-face" contacts, as discussed in numerous sales magazines. I shall, therefore, limit what I have to say here, to the third—"Telephone Contacts"—and about which much has also been written.

Before any workman can do the right kind of a job, two things are imperative: First, the workman himself must be properly qualified; and second, he must have the proper tools. This is true regardless of whether the work is ordinary labor or of the most skilled and technical nature.

No business office can have the right kind of telephone contacts unless the employes in that business office are properly trained, and the telephone layout is what it should be.

As regards the first item—"Employe qualifications"—practically all of what follows pertains to various ways and means of assuring ourselves that our business office employes are properly qualified; and obviously, carefully-planned training to accomplish this must be properly given to all new employes and the subject periodically reviewed as necessary with all employes as a permanent proposition.

Now as to the telephone equipment and arrangement in our business offices: Periodically it should be somebody's job to check this to make sure that our facilities are adequate—that we have enough

instruments and enough lines in the business office; also that this equipment is positively known to be in good condition and that it presents a neat appearance. Further, we should be equally sure that the instruments are properly placed and that the kind of equipment in use is known to fill satisfactorily the needs of the office in which it is used.

In the larger offices, it is desirable that as far as possible the lines be arranged so that each type of call received will be answered by employes thoroughly capable of handling that particular kind of call.

With all the thought which has been given the subject of telephone business office contacts, there is probably little that is new or which can be added to what has already been considered by most telephone companies. The important thing is: What are we doing with the information we already have in order to assure ourselves that the telephone contacts in our business offices are being promptly, courteously and efficiently handled?

The size of a business office necessarily determines the best plans for analyzing and improving telephone contacts; what will work splendidly in a large business office frequently cannot be justified from the standpoint of expense or will not work in a smaller business office, for example.

In recent years, considerable attention has been given to employe and public relations, for it has been realized that in order for a company to have good relations with the public it must have good relations with its employes.

Resulting from this appreciation of the interdependence of employe and public relations, studies have been made of various phases of both. In this article on better telephone contacts in the telephone business office, Mr. Eldridge discusses some of the things which employes may do in improving their contacts with the public over the telephone.

Mr. Eldridge has been in the telephone business for 22 years, and for many years has been interested in the human nature aspects of his work. In the course of it he has had abundant opportunity to observe human nature as displayed by employes and also as found in the telephone public.

Prior to his present work as a division commercial manager of the Illinois Bell Telephone Co., Mr. Eldridge for a number of years was in its traffic department, and hence has a very keen understanding of human nature reactions. What he has to say about better contacts with the public over the telephone will merit careful study of not only the business office employes, but all others who make these telephone contacts.

Commercial service observing is probably the best known plan today for locating poor telephone contacts in the larger business offices and also for improving them. To properly make and properly take up commercial service observations are, I believe, the outstanding means for improving telephone contacts in the larger business offices.

In this connection, just as is true in "Central office observing" in traffic work, so also is it of the greatest importance that the commercial service observation plan be properly explained to the business office employes at the very outset; this so those employes will realize that the primary purpose of commercial service observing is a constructive one and that the observations are intended to be helpful both to the individual employes (in making them more efficient and more valuable) and to the company in improving its business office service.

Failure to have this understanding at the start, or to tactfully and properly take up observations made, defeats the whole purpose of the idea, besides resulting in an inexcusable waste of time and money. It is absolutely essential to the success of our work that we have an accurate picture of the service we are rendering our customers.

At the smaller business offices, reliable information as to the quality of telephone contacts, speed of answering telephones, etc., can be secured by careful observation and by special "listening-in" on calls answered by business office employes. Complaints received or comments made by subscribers or other employes calling the business office are also frequently helpful in bringing about an improvement.

Regardless of how the telephone contacts in any business office are studied or what means are employed to effect an improvement, it is pretty safe to say that most of the employes' errors or irregularities in connection with their use of the telephone are covered somewhere in the following. These points are shown in four groups.

Because some of them apply just as much to incoming calls as to outgoing, the first list of suggestions is shown as "General"; the next two sections—"Outgoing Calls" and "Incoming Calls"—are covered separately. The subject of "Complaints" I feel, deserves special recognition and it is, therefore, discussed by itself, even though some of the ideas are also included under the other three headings.

General.

1. Give the individual with whom you are talking your undivided attention. You can do better work when you are alert and concentrate; none of us can carry on a really successful telephone conversation and add up a column of figures, or visit with a third party, at the same time. Therefore, *listen attentively.*

2. Place your lips close to the transmitter mouthpiece—about one-half inch away is right in order to get the best results. The well-known advantages of having the lips at the proper distance from the telephone mouthpiece are just as great in the business office as in the telephone

"Let Us Not Forget," Says Mr. Eldridge, "That Subscribers in Their Countless Calls to Our Offices, Have a Right to Expect That They Will Be Answered Promptly and Listened to Courteously; Also That Our Follow-Up Action Will Be All That It Should Be."

operating room. Briefly, the major benefits resulting from proper transmitter adjustment are: Improved transmission, greater accuracy, saving in time, less noise, etc.

3. In attempting to recall the operator, work the receiver hook up and down slowly and continuously until the operator answers.

4. Say "Good-bye" at the end of every telephone conversation, then the other fellow will know you have finished speaking and won't think you have "hung" up. This is important and if always followed, may save you some embarrassment.

5. Your manner or attitude as conveyed by your tone of voice is your only means of showing your good-will, courtesy and desire to serve over the telephone.

6. Use a pleasant and a *natural* tone of voice.

7. If necessary to leave the line, to look up information for example, make sure that the individual at the other end knows that he or she is expected to wait at the telephone.

8. Hang the receiver on the hook with the large end down.

9. Have a proper regard for telephone equipment. Help to keep it in good condition.

Outgoing Calls.

Many of the thoughts expressed in the foregoing as to the general use of the telephone, and in what follows in connection with incoming calls, apply to outgoing

calls equally as well. Other important suggestions, however, in connection with making outgoing telephone calls are:

1. In calling a number give that number to the operator slow-ly and dis-tinct-ly, separating the figures carefully so as to leave no room for doubt. Having done this, listen attentively so that if the operator indicates she has not understood you, you can straighten her out at once.

2. On a call where the number wanted is slow in answering, hold the line until the called party has had a reasonable length of time to answer.

3. When given a busy report, hang up your receiver and wait two or three minutes before calling the same number again.

4. In case of a "cut off," stay on the line; flash the operator and ask to have the connection restored.

Incoming Calls.

1. When answering the telephone, use an informative phrase in a courteous tone of voice, such as "Cashier's Office" or "Telephone Company," "Business Office," etc.

2. Answer promptly; don't keep the customer waiting; you are there to serve him. This is one of the fundamentals of good telephone salesmanship.

3. Have a pencil and paper ready for immediate use. This will save your time, the subscriber's time, and free your own line just that much sooner.

4. In answering a call which is to be picked up by someone else on an extension telephone, don't bang the receiver on the hook, but rather first pull down the hook and then hang up the receiver. In this way neither the other employe nor the party calling will get a more or less severe bang in the ear.

5. The tone of voice used over the telephone is very important. Therefore, be careful of *what you say and how you say it.* Facial expressions and gestures count for nothing over the telephone—the voice is everything. So try to put a smile in your voice and a little personality into your use of the telephone. Make the customer glad he called.

6. Let the subscriber state his case or make his request in his own way; don't interrupt—he may resent it.

7. Put in a few personal touches; "Thank you, Mr. Brown." Use the customers' names as suitable opportunities present themselves, but don't overdo it.

8. Terminate your questions with the word "please"—"What is your name, please?" "What was that address again, please?" Make a liberal use of the many little courtesy phrases and words which cost so little and mean so much.

9. Show an interested, alert and businesslike attitude; not one that is mechanical, indifferent or "bored." It is realized that this is a big order, but isn't it one worth filling?

10. When you are called to task by a subscriber, assume the responsibility for any error or complaint which he may bring to your attention, irrespective of the department responsible. Don't "pass the buck" or give the subscriber the impression that someone else was at fault or will straighten out the matter in question. Take care of it yourself.

11. Teamwork in answering the telephone is imperative and mutually helpful.

12. In case of a "cut-off" on an incoming call, hang up and give the other party a chance to be promptly reconnected with you so he will not receive a busy signal.

13. In taking a message for someone who is not present to answer the telephone for himself, why not do something more than merely take the message? Why not volunteer to be of service? "Is there anything I can do for you, please?"

Where you do take a message, it may save some very embarrassing complications, if you record *every message* accurately; and in taking that message, make sure that it not only shows the date, but also the time and who called. Then see to it that the message is received by the proper person immediately upon his return.

Handling Complaints.

Occasionally a service criticism is received which indicates that some representative of the telephone company has handled a complaining subscriber in such a way as to antagonize him still further. On the other hand, there are men and women who can handle complaining subscribers in such a way that often a very angry subscriber will, when he hangs up his receiver, be in a different mood entirely as a result of courteous treatment received from some capable, tactful telephone employe who used his or her head.

When a subscriber makes a complaint, it is almost always because he has experienced trouble of *some* kind. Maybe he is unable to describe it correctly, and possibly he may make some statement which the employe to whom he is speaking, knows is incorrect; however, ***he has had trouble*** and it is our job to help him. Therefore, let us be careful not to contradict or interrupt; rather let us listen attentively and endeavor to courteously, tactfully and satisfactorily dispose of each complaint received.

Sometimes I wonder if we appreciate our opportunities for turning enemies into friends, "knockers into boosters?" For example: When a telephone is out of order, the subscriber is temporarily cut off from the whole world—insofar as his own telephone service is concerned. Isn't it only natural that he should be impatient and perhaps say the same things which you or I might say under similar circumstances and which he doesn't really mean? Don't take such remarks personally. As one telephone supervisor said, "Let's keep the 'curt' out of 'courtesy' in the telephone business!"

No discussion regarding complaints received in a telephone business office would be complete without some very definite reference to subscribers whose telephone service is disconnected for non-payment.

It is pretty generally conceded that service cut-offs for non-payment are among the major sources of ill-will on the part of telephone patrons toward telephone companies. It is to be regretted that a situation exists which makes it necessary to cut off a subscriber's service for non-payment of his telephone bill, but unfortunately there seems to be no other way to deal with this problem effectively.

It is extremely desirable and very necessary that those employes who talk with subscribers on this subject should be thoroughly versed regarding the fundamentals involved; also that they make a special effort to tactfully and effectively present the company's viewpoint. A few of the most effective arguments are:

(a) The nature of our business is such that the amounts due us in the innumerable accounts involved are usually small.

(b) Prompt collections, systematically handled, are imperative if we are to render good all around telephone service.

(c) We cannot discriminate.

The vast majority of telephone subscribers pay their bills promptly. It is usually a negligible percentage of our customers who are involved in denials of service for non-payment—often the same ones month after month—and if such subscribers can be made to appreciate the reasonableness of our position, these complaints about service cut-offs can frequently be handled in such a way as to bring about a better realization on the part of telephone subscribers as to why they are expected to remit promptly and why we cannot do otherwise than handle our subscribers' accounts on a systematic, non-discriminatory, businesslike basis.

GUIDE POSTS.

To be glad of life because it gives you the chance to love and to work and play, and to look up at the stars. To be satisfied with your possessions, but not contented with yourself until you have made the best of them.

To despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice. To be governed by your admiration rather than by your own disgusts; to covet nothing that is your neighbor's except his kindness of heart and gentleness of manners.

To think seldom of your enemies. often of your friends, and every day of Christ; and to spend as much time as you can with body and spirit, in God's out-of-doors. These are little guide posts on the footpath to peace.—Henry van Dyke.

Now, as indicated at the start, it is realized that this article probably contains few new thoughts. However, it is also recognized that every telephone company appreciates the importance of establishing and maintaining proper contacts with its subscribers—and whose business is it if not that of the business manager to so manage that every help within reason will be utilized in locating and overcoming various causes of poor telephone contacts?

We, as business office supervisors, are practically all on an even footing, insofar as "better telephone contacts" are concerned. The important questions are: "What are we doing about it? What are we going to do about it?"

Let us not forget that telephone subscribers in their countless telephone calls to our business offices, have a right to expect that they will be answered promptly and listened to courteously and attentively; also that our follow-up action, which, after all, is the most important thing, will be all that it should be.

Bacon said, "Knowledge is power," and following out the same line of thought: "It's not how much we know, but what we use of what we know that counts."

Fine District Meeting of Texas Association at Tyler.

All attendance records at district meetings of the Texas Independent Telephone Association were broken at the meeting held at the Blackstone Hotel in Tyler, on August 6 and 7. Regardless of the hot, dry weather that prevails in that section at this time of the year, the Independent telephone people came from every part of east, northeast and central Texas to attend the meeting. Many traveled over 100 miles to be present.

There were 124 telephone managers and operators in attendance. As one of the officials of the association stated, "It is gratifying to note the interest manifested at this meeting by the Independent telephone people, and especially by those new companies recently formed from consolidations and mergers. They have sent managers and operators from exchanges that have never been represented before at any of our meetings or state convention."

The meeting for the first day convened at the Blackstone Hotel at 1:30 o'clock Tuesday afternoon, August 6, with President R. B. Still in the chair.

L. J. Irby, Dallas, special representative, Employers' Insurance Association, addressed the meeting on "How to Reduce Your Insurance Costs."

"Modern Methods of Collecting Telephone Accounts" was the subject of a very interesting talk by E. P. Seaman, district manager, Southwest Telephone Co., Georgetown. M. C. Jenkins, Dallas, toll plant supervisor, Southwestern Bell Telephone Co., gave a talk on "Improving Telephone Transmission" and used special equipment to explain the causes of faulty transmission.

President Still was the last speaker on the program for Tuesday afternoon, having as his subject "Your Obligation to the Public." He effectively covered the wide field of a telephone man's responsibilities to the people in the communities served by his company. He also talked briefly on legislative matters, reviewing the work of the association during the year and explaining the position taken by the association toward several bills which had been introduced at Austin during the regular and special sessions.

A new plan was tried out for the first time on Tuesday with reference to the traffic conference program. Heretofore it had been customary to have both a morning and an afternoon session on the traffic meeting, a recess being taken at noon for luncheon. At the Tyler meeting the traffic program was arranged to carry the meeting from the time it convened at 9:30 o'clock Wednesday morning until 2:00 o'clock that afternoon, without intermission, and then adjourn for the remainder of the afternoon for the barbecue and entertainment.

The new plan seemed to meet the approval of every one present. It afforded an opportunity to those who wanted to leave early, having a long distance to go, to do so. By this arrangement they did not miss any of the program or entertainment.

The traffic conference met at 9:30 o'clock Wednesday morning, August 7. It was called to order by Oscar Burton, assistant to general manager, Gulf States Telephone Co., Tyler.

William C. Edwards, Dallas, director, Texas Public Service Information Bureau, addressed the meeting on "The Spirit of Service." A very interesting paper on "Public Relations" was read by Miss Georgia Mae Warren, chief operator, Three States Telephone Co., Nevada.

"Handling of Switchboard Equipment" was the subject of a paper read by Miss Irene Ledbetter, toll service observer, Texas Long Distance Telephone Co., Waco. R. H. Cornish, Commerce, district manager, Gulf States Telephone Co., gave a splendid talk on "Selection of Women for Telephone Work." Sam H. Shutt, Waco, general superintendent, Texas Long Distance Telephone Co., addressed the meeting on the subject, "The Operators' Part in Fulfilling Our Obligations to the Public."

"Trans-Atlantic Telephone Service" was very interestingly explained by Williiam Swan, Dallas, special agent, Southwestern Bell Telephone Co. A. L. Edmondson, Houston, division commercial superintendent, Southwestern Bell Telephone Co., addressed the meeting on "Our Job as Managers." "Selling Long Distance Service" was the subject of a paper read by Miss Evelyn Hines, Texarkana, Mid-Continent Telephone Co. H. B. Whatley, toll traffic supervisor, Southwestern Bell Telephone Co., Dallas, gave a talk on "Operators' Use of Circuits."

The meeting adjourned at 2:00 o'clock and conveyances were provided to take over 100 telephone people to Burns Lake, near Tyler, where the Gulf States Telephone Co. was host to a chicken barbecue, watermelon feast and swimming party.

Pursuant to a call of the chairman a meeting of the executive committee of The Texas Independent Telephone Association was held at the Blackstone Hotel, Wednesday morning, August 7, at which several important matters were discussed.

Telephone Men Chairmen of A. I. E. E. Committees.

Telephone men are well represented in the appointments announced by President Smith at the recent meeting in New York of the board of directors of the American Institute of Electrical Engineers. The chairmen of the following general committees are well known in the telephone engineering field.

Board of Examiners, E. H. Everit, assistant to general manager, Southern New England Telephone Co., New Haven, Conn.: Law: L. F. Morehouse, equipment development engineer, American Telephone & Telegraph Co., New York, N. Y.; Code of Principles of Professional Conduct, F. B. Jewett, vice-president, American Telephone & Telegraph Co., president, Bell Telephone Laboratories, New York, N. Y.

These appointments as chairman of technical committees were made: Communications, G. A. Kositzky, chief engineer, Ohio Bell Telephone Co., Cleveland, Ohio; Electrophysics, O. E. Buckley, assistant director of research, Bell Telephone Laboratories, New York, N. Y.

H. P. Charlesworth, vice-president, Bell Telephone Laboratories, New York, was one of the new members added to the Lamme medal committee.

Group Insurance Campaign of Southwest Company Completed.

The Southwest Telephone Co., Dallas, Tex., recently successfully completed a campaign for group insurance on the lives of its employes. During the month of June those who had been employed by the company 60 days or more had an opportunity to subscribe for a substantial policy, the amount depending upon the monthly earnings. Employes contribute a nominal sum each month toward the cost of the insurance and the company pays the balance. Each employe names his own beneficiary.

Practically all of the 725 employes applied for the insurance and more than 85 per cent of the total employes of the telephone company also subscribed. The total amount of insurance involved is approximately $1,000,000.

Personalizing Service in Illinois

Personalization One of the More Recent Developments—Adequate Service Dependent Upon Degree of Perfection Attained in Transmission, Speed of Service, Etc.—Address Given at Annual Convention of the Iowa Association

By Mrs. Dorothy H. Van Ert,

General Traffic Supervisor, Illinois Telephone Association, Springfield, Ill.

One of the more recent developments in which we have been greatly interested in Illinois is the personalization of telephone service, or rather the setting-up of definite plans and methods for doing so. Personalization is rather a difficult thing to define exactly. We might say it is going just a "little beyond" our regular set-up for rendering service to our subscribers. It is getting the "courteous plus" habit. It is not only performing our duties efficiently and well but going "one step farther." In fact, it might well be called the extra element in the "baker's dozen" of telephony.

In view of these things, it sounds somewhat contradictory to say that we also standardize our personalization. However, we cannot render a highly personalized service to certain subscribers only, because if we did there would be others who would not receive the attention they have a right to expect, and the amount of service for which they are paying. Too, one operator's idea of what constitutes the service a subscriber has a right to expect might differ from that of another, so we must decide what additional service it is possible for us to render to all of our subscribers.

Possibly in no other place is telephone service personalized to the extent that it is in the small town. There the operator knows everybody in town. She knows their joys, their sorrows and their business. She knows who Mrs. Jones wants when she says, "Honey, ring Sally for me," and Mrs. Jones can go out in the garden or to the store or to visit Sally in perfect security that Central will take care of any calls that may come in.

In such a town, Central is the weather bureau and general dispenser of information, the depot agent, the human clock and general handyman. It isn't all one-sided either, for when flowers are blooming and gardens and orchards are brimful of good things, Central is never forgotten.

The doctor brings in an armful of flowers, the various Mrs. Joneses bring their offerings of a dozen eggs, or a loaf of fresh bread, or a box of strawberries or tomatoes. All in all it isn't such a bad arrangement, for after all, good telephone service is the sort of service that fits the needs of the majority of the people in a given community. As I see it there are only two objections that can be raised to giving this intensely personal service.

First, when in the natural course of events, Central gets married, or dies or moves away, the "new girl" has tough sledding for a while. Second, when these subscribers move into a larger community where it is not possible to render this intensely personal service, they are pretty apt to be spoiled for good, efficient, but less personal service.

"Personalization," Says Mrs. Van Ert, "Is Not Only Performing Our Duties Efficiently and Well But Going 'One Step Farther'."

Obviously it is not possible to render such diversified service in the larger city. Where the small town has one doctor, the larger city has hundreds, while the city directory probably has several pages of Mrs. Joneses. So it isn't so much that we disapprove of the entirely personal service in the larger city, but we couldn't give it if we wanted to. Hence we do the next best thing and make our service as personal as we can.

The policy of the progressive telephone company has been aptly expressed by Walter S. Gifford, president of the American Telephone & Telegraph Co. in his statement of policy: "We aim to give the most telephone service and the best, at the least cost to the public."

In order that we may accomplish this, we must first solve four problems of primary interest to every telephone company.

1. The problem of satisfactory service.
2. The problem of good public relations.
3. The revenue and expense problem.
4. The problem of satisfactory personnel relations.

Now when we begin to put into effect the program of personalizing our telephone service, we first ask ourselves: Just what is satisfactory service? We found that satisfactory service is not dependent upon any one thing, but rather on the satisfactory performance of a multitude of things, small in themselves, but all essential factors of good telephone service.

Nor is satisfactory service dependent upon the efforts of any one department, but rather upon the harmonious cooperation of all departments. We have learned that the adequacy of our service is in direct ratio to the degree of perfection we attain in the following things:

1. Satisfactory transmission, which means that any subscriber, anywhere, should be able to talk to any other subscriber at any place, and be able to hear and converse satisfactorily and without effort.

2. Satisfactory speed of service. A satisfactory speed of service may be said to be somewhere between two fixed points or limits. One, the higher, at or below the reasonable expectations and requirements of the subscriber. The other, the maximum speed which we know by experience we can render without increasing our operating and maintenance costs. It is as if we said:

Let X = the speed which the subscriber expects and desires.

Let Y = the speed which the telephone company can afford to give.

Our problem thus stated would be to make X equal Y, or as nearly equal it as possible.

We would qualify this further by saying that any telephone company can furnish any speed demanded, but only on condition that the subscribers are willing to pay for that speed. Our problem is complicated, therefore, by attempting to furnish the best possible speed consistent with the rates paid in that particular community.

3. Accurate handling. This means cutting-down errors to the absolute minimum. Personalization is not intended to take the place of accuracy nor to condone inefficiency.

4. Intelligent attention. This means impressing the subscriber with the idea

that we are sincerely interested in completing his call. It means intelligently handling any special conditions that may occur on his call so as to result in greater satisfaction to him. It means giving close, undivided attention to this particular subscriber and his wishes as long as we are handling his particular call.

5. Sympathetic interest. This means endeavoring to see things as your subscriber sees them and expressing that endeavor so that the subscriber will realize that we have his interests at heart. Sometimes a subscriber may be unreasonable or he may ask something that it is impossible or impracticable for us to grant. Even so, we should not merely inform him that we cannot do the thing he wants done, but should try to look at the matter from his point of view and endeavor to lead him to understand why we cannot grant his request.

6. Good telephone manners. This means to convey by our voice and our manner the fact that we are gentlemen and gentlewomen. It is as far removed from being servile and fawning as it is from being rude and overbearing. It is being courteous, tactful and respectful, being pleasant and interested and patient. In short, it is the natural manner of a man or woman who respects those whom he serves, his job and himself.

It is extremely important that the chief operator and the supervisors understand these six points and observe them faithfully in all their own contacts with their subscribers and their employes.

Little can be accomplished by merely reciting the foregoing points to the operators to further personalize the service.

We classify our contacts with our subscribers into three groups. First, the ordinary contact on the ordinary call, which requires only ordinary handling. Quick, courteous accurate handling is all that is required or desired on this class of calls. Second, calls on which for some reason difficulty is encountered and the subscriber is dissatisfied.

This is the place where we can go a "little beyond" our set-up. We should endeavor to develop our operators to handle these cases themselves. Cut-offs, requests for better connections, and reports of wrong numbers are examples of things that can better be handled by the operators.

Third, unusual cases where the operator lacks either time or experience to handle them satisfactorily. This class of contacts may either be initiated by a subscriber asking for the supervisor, or the result of cases which the operating practice states specifically shall be referred to the supervisor, or cases referred by the operator because she is uncertain about how to proceed.

It is our aim to discourage the operators in referring calls which they could handle themselves. We endeavor instead to develop their judgment and initiative so that they will be able to handle these situations without taking the time to refer them to the supervisor.

There is still another way in which our operators can help in personalizing the service. It is that they have the best opportunity to notice the little things that seldom come out in the open. For example, a subscriber may not make a definite complaint or demand, but he may make some remark indicating to the observant operator the fact that he is displeased or annoyed. Often this annoyance is caused by lack of understanding of our practices or lack of the knowledge as to why a certain practice is necessary or desirable.

This is where the observant operator should make a note of the occurrence and enable us to establish a contact with the subscriber that will eventually result in making a more satisfied telephone user, and thus an easier one to deal with.

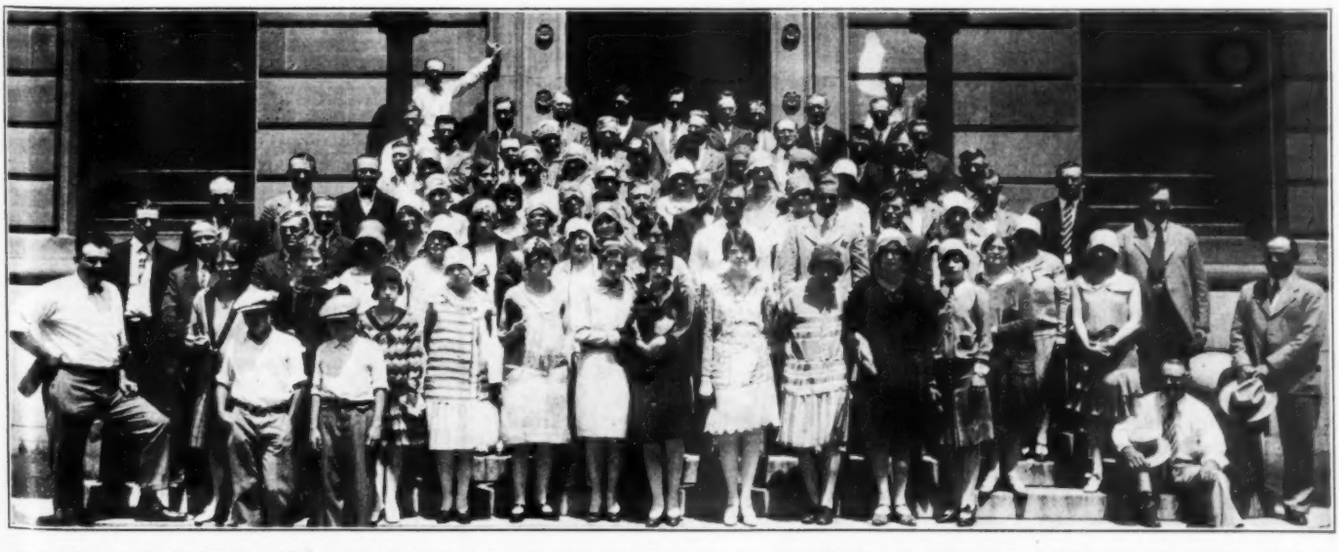
Take the matter of giving CLR service. We all know it is the fastest, most satisfactory method of handling toll calls, and we all know that subscribers like, prefer and demand it after they become accustomed to it. At first, however, they may not understand what we are doing when instead of the usual, "We will call you," we say instead "Will you **hold the line,** please?" Often we hear something like this, "No, I'm busy. I don't want to stand here holding any line—call me."

Your non-observant operator is likely to think, "Oh, go to grass, hang up if you want to. If you don't know what's good for you, it's your own funeral, not mine." Your observant operator on the other hand is more apt to think, "This man doesn't understand that he is slowing down his own service, so I'll just make a note of this and see if we can't convince Mr. Man that he does want to hold the line."

Or in spite of the fact that we advise a certain subscriber of the called number every time he places his call without a number, we see that it evidently fails to make the slightest impression. Now the operator can lighten her own work and increase her subscriber's appreciation of our service at the same time by noting this, so we can have an opportunity of explaining to him why it is desirable for him to furnish the called number whenever it is possible.

Perhaps a certain subscriber reports that his bell rings a dozen times a day. Often when we investigate we find that he does not answer his telephone promptly. Consequently when he does get around to answering it, no one is on the line. If the operator will note this and give us an opportunity to do so, we can tactfully lead our subscriber to understand why it is to his advantage to answer his telephone just as soon as it rings.

An operator may have difficulty in making a subscriber hear, and she may



A Portion of the Telephone Managers, Operators and Employes Who Attended the District Meeting of the Nebraska Telephone Association Recently at Norfolk. It Was Taken in the Forenoon, and Is Minus the 30 Who Appeared at the Afternoon Session. Over a Hundred Were Registered.

notice that he has difficulty hearing others who call. If this is noted and referred, we may find his equipment needs adjusting or we may find that the subscriber has defective hearing and that he needs special amplifying equipment.

There are numberless other occurrences that will appeal to the observant operator as an opportunity to personalize our service and better our public relations.

Operators are not the only ones who must assume responsibility for personalizing telephone service. The operator can best furnish the opportunity for supervisor contacts and she can best establish the contact herself in certain cases. In others it is better to refer the case to the supervisor who will establish the necessary subscriber contact. In doing so she must make every effort to see that every contact is satisfactory and that it results if possible in a more satisfied subscriber. In order that she may do this, strict attention should be given the following points:

1. She must answer promptly. Nothing is more maddening than to be already annoyed and then to have to wait for a chance to air your grievances.

2. Take time for the "little courtesies." You wouldn't rush headlong into conversation with someone you had never met. If you act as a lady would, your subscriber is pretty certain to act as a gentleman should. Say "Mr. Jones? This is the supervisor, Miss ———. Your operator tells me that you are having trouble getting 804. May I help you?"

A subscriber would have to be pretty mad indeed to be rude in the face of such a beginning. Use his name if you can. Merely to call a person's name will often bring them up short in the midst of a tirade.

3. Don't ever interrupt. Let him get it out of his system. He will be a whole lot more reasonable once he gets rid of his particular grievance.

4. Express regret, sincerely but not profusely. Don't be a Uriah Heep. It is more irritating when one is annoyed to be met with a "worm in the dust" attitude than it is to be contradicted. It makes one feel so helpless, and who wants to waste time feeling helpless when one wants to be angry? If we were wrong say simply, "I am sorry" and let it go at that. Then take steps to rectify the error.

5. Action. Above all things it is action the disgruntled subscriber wants. Something went wrong and he wants it fixed up right now. Try to convince him that we are willing and anxious to rectify errors; that we appreciate his giving us the chance to correct the trouble and that we will take action at once.

6. Follow-up. We said we should assure our subscriber of immediate action. The next thing is do it. We should make no impossible promises just to get rid of a subscriber, but if you promised him anything, it's up to you to "make good" on it.

7. Avoid the use of technical terms. Of course we know what we mean when we say, "When you initiate a call, the operators locate your jack in the multiple and plug in with the answering cord." The trouble is that the average subscriber won't know what you mean. He wouldn't know what a multiple was if he met it coming down the street, and a jack might mean anything to him, according to whether he is a farmer or a card shark. Talk then in terms he can understand.

In the beginning I said that in a larger city we must, perforce, systemize our personalization. It is like systemizing charity. You, if you live in a small town, may know a woman who is admirable, respectable and worthy, but who through unfortunate circumstances is destitute and needs help. So you help her. There's no red tape about it, nothing but a kindly desire to help.

In a city like Springfield, or Chicago, or New York, it can't be done. We want to help, too, but there are beggars on every corner, people we never saw before, and know nothing of. If we didn't have social agencies to systemize our charity, we would get nowhere and accomplish nothing.

Thus with our personalization. So we definitely instruct our operators as to just how far they may go in personalizing our service. We make sure that they understand what it means and just what we expect of them.

We try to cover this in about three sessions of one hour each for each section. Of necessity we establish a limit beyond which it is impracticable to go. That we may know what we are accomplishing, we have our local operators make out a little ticket whenever they notice anything which they feel should be referred, in the interest of good service.

This is referred to the supervisor who uses her judgment as to whether she shall call the subscriber back. On the back of this ticket the supervisor records the exact reply and reaction of the subscriber. This is then classed either as favorable, unfavorable or non-committal.

Each month we summarize these local service tickets and keep the record. As yet we haven't enough data to know how many of these tickets should be written in a given office, but we do know that some calls are bound to go wrong. Eventually we will know how many tickets should be written and establish definite objectives. Probably as our operators become more familiar with personalization there will be a time during which more tickets will be written.

Later it would seem a time would come when the line will drop. When through training and subscriber education, there will be less occasion to write these tickets. At any rate the practice is fascinating as a study, and it is one that will pay rich dividends in better personnel and public relations. These things count when it comes to building permits, rate cases, stock or bond issues and legislation. For he who would reap, first must sow; and in our efforts to personalize our service, we are sowing the good seeds of subscriber satisfaction.

A DAY OFF

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

He was known as the "Honorable Mr. Brooks" in business circles and as the "Big Noise" by his employes.

He was a moneyed man and had a big position which he held with a high hand, even though he had not earned it. His employes he regarded as necessary evils; and they sensed it. He always spoke in a high, hard voice to them. That was how he earned his nickname.

There was no gleam of friendliness in the lowered eyes of his employes when he came into a roomful of workers. There were other things, such as fear, dislike, ridicule. But none of these meant anything to him. Friendliness would have meant as little.

One day he fell seriously ill, and the newspapers gave him a front page write-up, because he was a moneyed man. But this write-up received no more than a passing glance from his employes and no comment except, "Well, he won't be nosing around the shop for awhile." They seemed to go about their tasks with lighter spirits. No one troubled to ask, "How's the Big Noise?" because none of them cared to know.

At only one time were they interested. It was when the news reached the shop that he had passed away. Then they gathered in little knots to discuss what they would do the day of his funeral—a day off for them.

MORAL: Any individual is a mighty small atom in the universe. And one like the Honorable Mr. Brooks is forgotten almost before the last ripple of excitement caused by his passing has died away.

Here and There in Telephone Work

The Magneto Exchange Repairman —Transmitting Troubles (Ctd.).

By John A. Bracken.

Before changing the magneto telephone set transmitter it is well to first make a thorough inspection of the wiring, connections, cords and battery or dry cells.

A dry cell, or any other producer of electrical energy, has what is termed "internal resistance." There must be a path through the producer in which the electric current flows while in action; and this path has some resistance, even though it be ever so small. For example, when that portion of the circuit, Fig. 1, shown in full lines is connected to the three dry cells of 4.5 volts, the current passing through the telephone set wiring, induction coil, hookswitch contact, and transmitter will not be the result of dividing the E. M. F. by resistance, or $4.5 \div 61.51$ equals 0.073 ampere, as might at first appear.

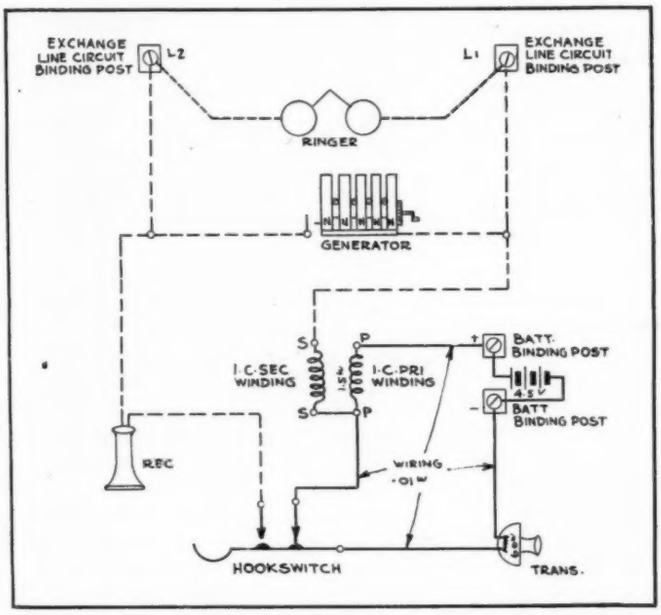


Fig. 1. Resistance of the "Talking" Circuit of Magneto Telephone Set.

It requires a certain part of the 4.5 volts to force the current through the resistance of the three dry cells. This latter resistance must be added to the external resistance to obtain the total resistance of the entire circuit, which must be divided into the total E. M. F. to determine the full value of the current flowing in this circuit without the use of a measuring instrument.

The value of this current can be obtained by the formula $I = E \div (R+r)$, where I equals the current in amperes; E, the E. M. F.; R, the total external resistance of the circuit in ohms, and r, the internal resistance of the battery in ohms. Then R plus r equals the total resistance of the complete circuit under consideration.

For example, if the internal resistance of each of the dry cells in the circuit, Fig. 1, is 0.5 ohm, then the total resistance is $61.51 + 0.5 + 0.5 + 0.5 = 63.01$ ohms; and the current in amperes is equal to $E \div (R + r)$ or 4.5 divided by 63.01 equals 0.071 ampere or 71 milliamperes. The prefex "milli" means thousandths of an ampere. This latter current flow value is less than the former value of 73 milliamperes owing to including internal resistance of dry cells in the calculations.

The resistance of the electrolyte (exciting material) in a cell is usually called the internal resistance of the cell, and the resistance of the devices and wiring connected to the cell the external resistance.

The internal resistance of a cell may be found by measuring with a high resistance voltmeter: (1). Connect the voltmeter so as to obtain reading of the E. M. F. of the dry cell on open circuit, Fig. 2-A; that is, the cell free from all connections except the voltmeter. (2) Connect a resistance of known value to the cell by means of a switch, Fig. 2-B, and again measure the E. M. F. Then by formula, r *equals* $R \times (E - e) \div e$, in which r equals internal resistance of the cell; R, external distance (known resistance and connecting conductors); E, open circuit E. M. F. of cell; and e, closed circuit E. M. F. of cell. Example: The open circuit of a certain dry cell is measured at 1.5 volts. When it is connected in series with a resistance of, say, 2 ohms, the E. M. F. as measured on the voltmeter is 1 volt. What is its internal resistance? r equals $R \times (E - e) \div e$, or $2 \times (1.5 - 1) \div 1$ equals 2 ohms.

Another simple test of the internal resistance of a dry cell is to connect voltmeter and ammeter to the cell as shown in Fig. 3-A. Then by formula, R equals $E \div I$, or the E. M. F. of the cell as given by the voltmeter is divided by the current in amperes which the cell is able to send through the ammeter when connected directly to its terminals.

In making this test, the reading of the voltmeter and ammeter should be taken

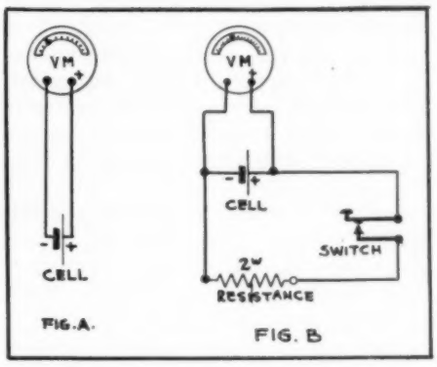


Fig. 2. Measurement of Internal Resistance of Dry Cell.

simultaneously for accuracy. For this reason it is a decided advantage to reduce the current by connecting a resistance in series with the ammeter and cell, Fig. 3-B. In this case the E. M. F. (E) of the cell on open circuit is first read.

With the cell, resistance, and ammeter connected as in Fig. 3-B, the E. M. F. (e) is again read. The current, I, is also read on the ammeter. Then r, or internal resistance of the cell, is equal to the open-circuit reading, E, minus the closed circuit reading, e, divided by the current reading E or $(E - e) \div I$ equals r. Example, $\frac{1.5 - 1.0}{5} = 0.1$ ohm, the internal resistance.

Perhaps the most accurate method of measuring the internal resistance of the telephone set dry cells is by means of the Wheatstone bridge. Here the cell is connected to the bridge line posts marked X_1 and X_2 see Fig. 4. A switch, S, and galvanometer, G, are connected as shown.

The resistance rheostat, R, and arms, A and B, are so adjusted that the galvanometer deflection will be equal whether the switch, S, is open or closed. Then, as an

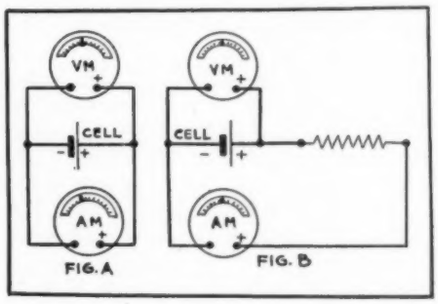


Fig. 3. Another Simple Test to Determine the Internal Resistance of Dry Cell.

example, r equals $(R \times B) \div A$ or $9 \times 10 \div 100$ equals 0.90 ohm, the internal resistance of the cell. The internal resistance of a new dry cell is usually less than 0.1 ohm, but increases with the age of the cell, whether the cell is in use or not.

The internal resistance of a device which

generates a current has the same effect in the circuit as though it were a part of the resistance of the external circuit. Consequently, a portion of the total E. M. F. produced by the source of electrical energy is used in forcing the current through its internal resistance.

When dry cells are connected in series as in the magneto telephone set circuit, their internal resistance should be nearly equal. If the internal resistance of one of the cells in a group forming the battery becomes high, it tends to reduce the output of the others. One of the principal reasons for this is that when the internal resistance of a certain cell in the group is high, and an attempt is made to obtain current from it, its E. M. F. drops

This drop in E. M. F. may be so great when the current output is increased that a portion of the E. M. F. of the good cells will be used in overcoming the internal resistance of the bad cell. A cell in this condition is more of a detriment to the action of the other cells than a help, and should be removed.

Suppose the E. M. F. of a battery is measured when it is not supplying any current and is found to be 4.5 volts. Now if the receiver is removed from the hook-switch, and about 70 milliamperes of current flows through the circuit, if the E. M. F. is measured across the battery terminals again, it will be found that it has dropped a small amount.

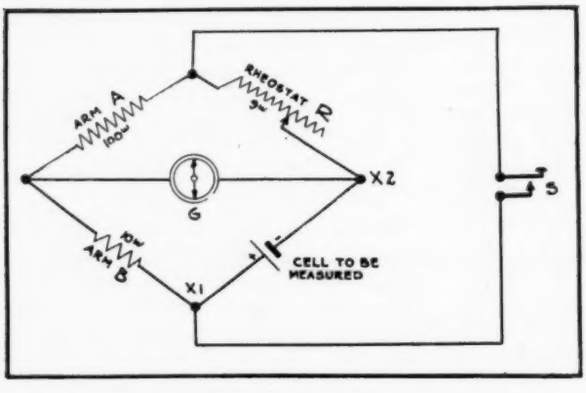


Fig. 4. Wheatstone Bridge Method of Measuring the Internal Resistance of Dry Cells.

If it is assumed that the E. M. F. has dropped from 4.50 volts on open circuit to 4.49 volts when supplying the 70 milliamperes referred to, the drop in E. M. F. will be equal to the difference between 4.50 and 4.49 volts or 0.01 volt. The 0.01 volt is used in forcing the 70 milliamperes through the internal resistance of the three-cell battery. The drop in E. M. F. caused by the furnishing of current from any source of electrical energy increases in direct proportion to an increase in the current delivered.

The current consumption is a very important point to be considered in the operation of the magneto telephone set transmitter because of the fact that the current supplied must be sufficiently high.

Data Concerning New York-London Telephone Cable.

Interesting information relative to the proposed deep sea transatlantic telephone cable, which the American Telephone & Telegraph Co. announced last fall was possible, is given in the current issue of the Proceedings of the American Institute of Electrical Engineers.

Work is now going forward actively on the development of a cable system of this type for connection between London and New York City, it is stated, and it is possible that this circuit will go in service as early as 1932. While the new cable will yield only a single telephone circuit, this will be one of maximum reliability, free from the variations characteristic of radio circuits.

The route of the cable is not settled in detail, but it is probable that the main transatlantic link will extend directly from Newfoundland to Ireland, a cable length of approximately 1,800 nautical miles. From Newfoundland it is expected that the circuit will be carried through several sections of submarine cable to Nova Scotia; thence by land circuits through Nova Scotia, New Brunswick, and the New England states to New York City, where it will terminate.

From Ireland the circuit will probably be carried through submarine cable to Scotland and thence by land cable to London, which will be the other terminal.

The new cable will be of the continuously-loaded type. For the loading material, it is planned to use one of a new series of alloys which are designated as "perminvars." These are composed of nickel, cobalt, and iron, to which may be added small amounts of non-magnetic metals such as molybdenum. They are characterized by high resistivity and by having a constant permeability over a wide range of magnetizing force.

The conductor will be insulated with a new material "paragutta." Submarine cables in the past have been insulated with gutta-percha or closely related materials, and in a few cases with rubber compounds. Paragutta makes use of similar raw materials, but so combined and treated as to give superior electrical properties with mechanical properties similar to gutta-percha.

A remarkable feature of the cable is the high attenuation which it is proposed to use. It is possible that successful operation can be obtained with an attenuation of approximately 150 db. for the high frequencies of the voice range. This is a much greater attenuation than that at which telegraph cables are operated.

Such a high attenuation depends on two features of the cable; the characteristics of perminvar are such that a relatively high sending level can be used, and by means of special construction, the cable will be shielded against interference so that a very low receiving level can be employed.

To make two-way operation possible, voice-operated switching mechanisms will be required at the two terminals. These devices will permit the circuit to be operated only in one direction at a given time, this direction of transmission, however, being automatically controlled by the speech waves of the two talkers so that conversations may be carried on in a perfectly natural manner.

Flood Enters Operating Room; Operator Continues Working.

When the floods came recently to Elmdale, Kan., and the river went out of its banks, Mrs. Myrtle Dull, local operator for the Southwestern Bell Telephone Co., failed to get excited. She just kept on answering calls from farmers who wanted help in saving their crops and livestock. When the water started to cover the floor of the exchange, Mrs. Dull just hitched her feet into the rungs of her chair and kept on.

As the waters continued to rise, she telephoned male friends to bring down some dry goods boxes. Before they arrived the water had reached to the board so that it began to touch the switchboard cords. It was 20 minutes before the men and the boxes arrived, and during that time service was suspended because Mrs. Dull had to stand on her chair holding the switchboard cords in her arms above the water, as a wet cord would have ruined service.

When her helpers came with the boxes, the switchboard was set upon them above the water. A nail keg was put on the seat of the chair to enable the operator to reach the jacks. From Thursday morning until Saturday noon Mrs. Dull, perched upon her improvised seat at her elevated board, kept the service going without a hitch. Then the waters went down and she was relieved.

Lincoln T. & T. Co. Has New Exchange at Gresham, Neb.

The Gresham exchange of the Lincoln Telephone & Telegraph Co., newly reconstructed and in a brand new home, was formally opened on July 27. The exchange serves 415 subscribers, rural and town, and is managed by Carl Keester.

The first man to use the new equipment was R. L. Thompson, acting mayor, who placed a call over it for J. H. Agee, general manager of the company, at his office in Lincoln. Over this he expressed appreciation for the citizens of Gresham of the new building, the common battery system and the enterprise of the company.

Officials of the company who attended

the cutover were H. F. McCulla, F. E. Behm, C. C. Donley, R. S. Brewster, H. H. Wheeler, Jay Pugsley and C. W. Motter, from the headquarters office at Lincoln, and C. G. Bennett of York.

The new building is typical of the small exchange structures the company is now constructing. It is a one-story building of stucco and brick trimmed with colored tile. The front of the building houses the commercial office, lobby, public telephone booth and switchboard room.

The equipment room, operators' rest room and large garage occupy the remainder of the structure. A new two-position switchboard of the very latest type replaces the old magneto board, and new telephones were put into use on all lines.

District Meetings of Texas Association Scheduled This Month.

A district meeting and traffic conference will be held by the Texas Independent Telephone Association on Tuesday and Wednesday, August 20 and 21 and on Friday and Saturday, August 23 and 24, a Mid-Summer convention will be held at Corpus Christi.

At San Marcos the meeting will be held at the Rogers New Spring Lake Hotel, at the headwaters of the San Marcos river, just outside the city limits of San Marcos.

At Corpus Christi the meeting will be at the Plaza Hotel, the new hotel on the bluff overlooking the city and the bay.

Personal Notes from the Field

H. D. Currier of Chicago is now on the executive staff of the Associated Telephone Utilities Co., with headquarters in Madison, Wis. Mr. Currier is widely known in the Independent telephone field

H. D. Currier, Well Known in Telephone Field Through His Many Years of Activity in the Independent Group, Is Now on the Executive Staff of the Associated Telephone Utilities Co., With Headquarters in Madison, Wis.

and has had experience in all branches of the industry, so that he is especially well qualified for executive work on the staff of this large and growing Independent organization.

Mr. Currier has been in telephone work for 32 years, starting with the Chicago Telephone Co. in 1897, remaining with this company until 1901, when he went with the Maryland Telephone & Telegraph Co., Baltimore, Md. He was with the Century Telephone Construction Co. in 1902, when the company was located in Cleveland, Ohio, and with the Western Electric Co., Chicago and New York, from 1903 to 1908, in charge of the circuit laboratory.

During 1908 and 1910 he served as an engineer for the Duplex Metals Co., New York and Chicago. He was in the sales department of the Western Electric Co. in 1911 and 1912, leaving this position in September, 1912, to enter the employ of the Kellogg Switchboard & Supply Co. in charge of laboratory and engineering inspection department.

Later Mr. Currier became chief engineer for the Kellogg Switchboard & Supply Co., leaving that position in 1926 to become vice-president and chief engineer of the American Electric Co., Inc. For the past year he has been on the staff of H. L. Harris, connected with the Chicago office of the Gary interests.

Frank J. Baker, operating engineer for the Home Telephone & Telegraph Co., of Fort Wayne, Ind., has been promoted to the position of assistant general plant superintendent, Harry E. Gray, general plant superintendent and chief engineer of the company, has announced.

Mr. Baker will continue in the duties of supervising maintenance and installation forces which he performed previously, and in addition will assist the general plant superintendent in supervising the work of the entire plant department.

Frank J. Baker, For 19 Years with Home Telephone & Telegraph Co., Fort Wayne, Ind., Is Now Assistant General Plant Superintendent.

He has been in the employ of the Fort Wayne company for the past 19 years and has acted in numerous capacities. In 1926 he was made operating engineer, which position he has held until his present promotion.

Obituary.

Albert E. Berry, president of the Chesapeake & Potomac Telephone Co., died at his home in Washington, D. C., on August 9, a victim of "sleeping sickness." Mr. Berry was ill for about three weeks and had been subject to sleeping spells of increasing duration.

The disease is extremely rare in Washington, only a few cases diagnosed as lethargio encephalitis or "sleeping sickness" having been found there.

Dr. George McCoy, head of the Hygienic Laboratory, said that no determination has ever been reached as to the cause of the disease. The malady known in Washington, he said, is radically different from the "sleeping sickness" of the tropics.

Mr. Berry was born in Washington, August 19, 1878, and was a graduate of Georgetown Law School, receiving his LL. B. degree in 1903 and LL. M. in 1904. He entered the employ of the Chesapeake & Potomac Telephone Co. in Washington in February, 1900, in the rights of way department. He was transferred in 1901 to salesman in what was then the contract department. He filled various positions with the company until January 1, 1908, when he was appointed division manager of the Bell Telephone Co. of Pennsylvania with headquarters at Philadelphia.

During the war, while in Philadelphia, he was assistant director of Liberty Loan and other war campaigns. He was elected president of the Chesapeake & Potomac Telephone Co. October 31, 1919.

Mr. Berry was a director of the Federal-American National Bank and the Merchants Transfer & Storage Co. of Washington, and the Baltimore Trust Co. of Baltimore, Md.

The Murray and the Varley Loops

Knowledge of Fundamental Theory of Wheatstone Bridge Leads to Effective Use of Murray and Varley Loops for Locating Trouble on Open Wire and Cable Conductors—Explanation of Wheatstone Bridge, Murray and Varley Loops

By Arthur L. Albert,

Instructor of Electrical Engineering, Oregon State College, Corvallis, Ore.

As all who are familiar with telephone and telegraph line maintenance realize, the Murray and Varley loops are very reliable methods for locating trouble, such as crosses and grounds, on both open-wire and cable conductors. Although these methods are relatively simple, they are often used without understanding the fundamental theory on which they are based. While a knowledge of this theory is not essential, it leads to a more intelligent and effective use of the two methods.

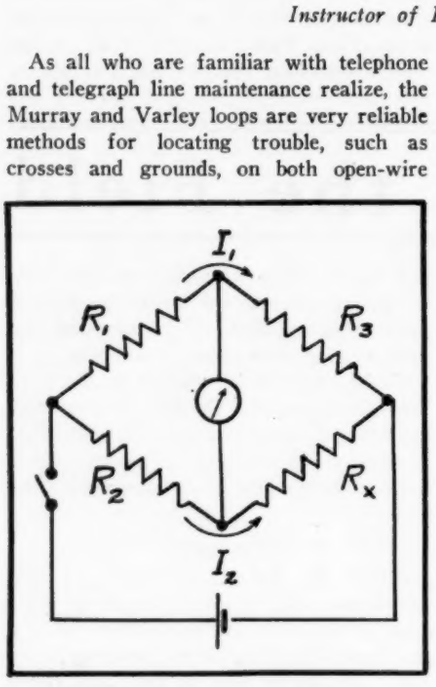


Fig. 1. The Wheatstone Bridge.

The Wheatstone Bridge.

The Murray and Varley loops are based on the Wheatstone bridge shown in Fig. 1. In this diagram R_x is the unknown resistance to be determined, and R_1, R_2, and R_3 are variable resistors of known value. These variable resistors are adjusted so that when the switch is closed the galvanometer does not deflect and, therefore, no current is passing through the galvanometer.

Since no current is flowing through the galvanometer, the points across which it is connected must be at the same potential. Furthermore, when no deflection is produced the current in both R_1 and R_3 must be the same as indicated by I_1; similarly, the current through R_2 and R_x is the same as indicated by I_2. It can then be written that the drop in potential across R_1 equals that across R_3, and that the drop across R_3 equals that across R_x or $I_1R_1 = I_2R_3$, and $I_1R_2 = I_2R_x$.

These two relations can be written $I_1/I_2 = R_2/R_1$, and $I_1/I_2 = R_x/R_3$, from which it follows that:

$R_2/R_1 = R_x/R_3$, and $R_x = R_2R_3/R_1$ 1

The Murray loop connections are shown in Fig. 2, and it is evident that this is a form of the Wheatstone bridge just considered. As indicated, the wire having the ground to be located is connected at the distant end with a wire which is in good condition. By analogy with the Wheatstone bridge just considered, the resistance of the length of wire Y is equal to R_3, and the resistance of the length X is equal to R_x; also, the resistors, A and B, are analogus to R_1 and R_2 respectively.

The Murray Loop.

If the clear wire and the grounded wire have the same resistance per foot, and if the total loop length is known, the distance to the ground can readily be computed. The resistance corresponding to R_x in Fig. 1 is Xr, where X is the distance to the fault, and r is the resistance of the wire per foot. Similarly, the resistance corresponding to R_3 will be $(L-X)r$, where L is the total loop length in feet, and the other factors are as previously mentioned. If these values are substituted in equation 1,

$Xr = [(L-X)rB]/A$,

and $X = BL/(A+B)$ 2

If L is in feet, X will be the distance to the ground in feet. In case the total loop length is not known, the total loop resistance can be substituted for L, and if this is done, X will be the resistance to the fault. This resistance divided by the resistance per foot gives the distance to the ground.

The condition may occur in practice where there is not a parallel wire of the same size available for connecting at the distant end, and that the two wires connected together do not have the same resistance per foot. Assuming that this is the case, it is still possible to find the distance to the ground. If the total loop resistance is measured, and if this value is substituted for L in equation 2, X will be the resistance to the fault. This value divided by the resistance per foot of the faulty wire gives the distance to the fault.

If the two wires connected together do not have the same resistance per foot, and if the total loop resistance is not known and due to lack of apparatus cannot be measured, it is also possible to find the distance to the ground. Under these conditions, the resistance corresponding to R_x in Fig. 1 will be Xr_2, and that corresponding to R_3 will be $\frac{Lr_1}{2} + \left(\frac{L}{2} - X\right) r_2$ where L is the total loop length, X is the distance to the fault, and r_1 and r_2 are the resistances per foot of the clear and the grounded wires respectively. If these relations are substituted in equation 1,

$$Xr_2 = \frac{\left(Lr_1 + \right)\frac{L}{2} - X\left[\ r_2\ \right]B}{A},$$

and $X = \dfrac{BL(r_1 + r_2)}{2r_2(A+B)}$ 3

The Varley Loop.

The Varley loop is more convenient to use than the Murray loop because it can be converted to a Wheatstone bridge for measuring the circuit resistance by throwing the switch to the "up" position shown in Fig. 3. As in the Murray loop method, the grounded wire must be connected at the distant end with a clear wire. The Wheatstone bridge relations given by equation 1 are also applicable to the Varley loop. If the switch in Fig. 3 is thrown down, forming a Varley loop, it is evident that R_3 in Fig. 1 is equal to the resistance

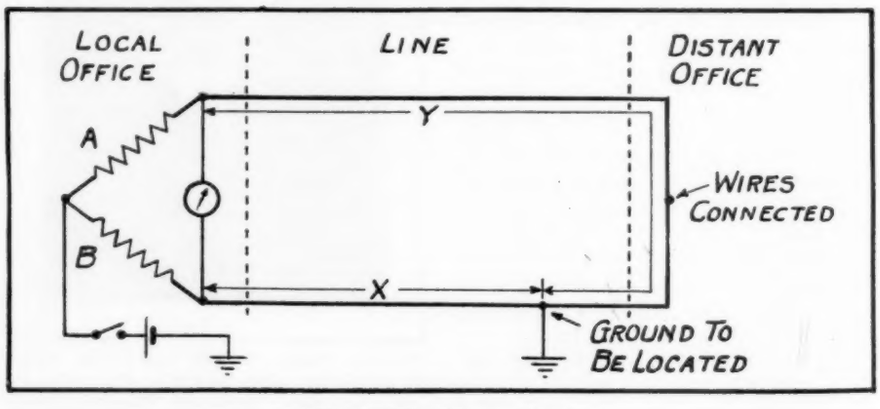


Fig. 2. The Murray Loop.

of Y, and that R_x is equal to the resistance of R plus that of X.

Assume that two wires having the same resistance per foot are connected together as in Fig. 3, and that it is desired to find the distance to the ground on one wire. If the Varley loop is used, the easiest method is to throw the switch up and measure the total loop resistance, which will here be termed R_L to prevent conflicting with the loop length L. The resistance corresponding to R in equation 1 is $R + Xr$, where X is the distance to the ground, and r is the resistance per foot.

Similarly, the resistance corresponding to R_3 is $R_L - Xr$. Therefore it follows that

$$R - Xr = \frac{(R_L - Xr)B}{A}, \text{ and}$$

$$X = \frac{R_L B - RA}{r(A+B)} \quad \ldots\ldots\ldots\ldots\ldots\ldots 4$$

As previously mentioned, X will be the distance to the ground in feet; if the factor r is not added, X will be the resistance to the ground.

Should it be necessary to connect the grounded wire with one of a different size, it is possible to find the distance to the ground. If the total loop resistance is substituted in equation 4, and if r is the resistance per foot of the grounded wire, X will be the distance to the ground.

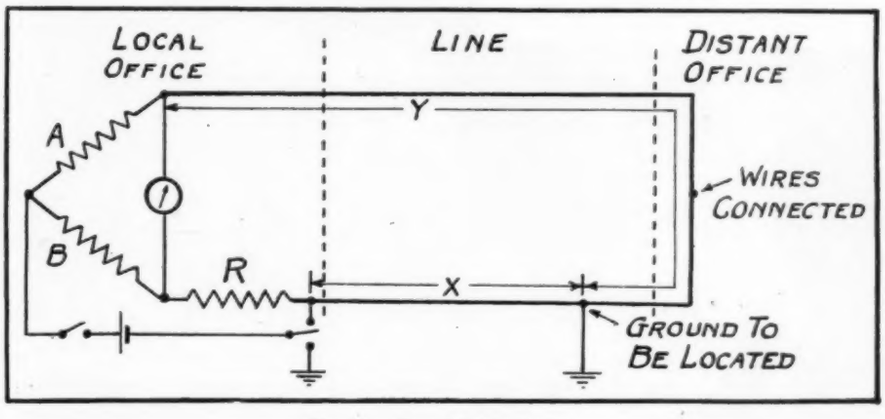


Fig. 3. The Varley Loop.

Although the illustrations here given have been for locating grounds, the methods apply equally as well to locating other troubles such as crosses with other wires. Furthermore, it is possible that other conditions than those here considered might be encountered in maintenance work; however, these problems can readily be solved if the basic Wheatstone bridge theory is thoroughly mastered.

Perseverance Rewarded in Finding Trouble on Toll Circuits.

A thin piece of wire, hardly more visible than a spider's web, was blown by wind upon a telephone pole at Duncan, B. C., Can. As it swayed in the breeze it came in contact with three toll wires, causing noise, intermittently, on the Vancouver-Victoria, Nanaimo-Victoria and Cowichan Lake-Duncan circuits of the British Columbia Telephone Co.

As the trouble only occurred at intervals and at no great length of time, it was impossible to take accurate electrical measurements on it. So the telephone men did the next best thing. They ascertained the approximate locality of the trouble, and then kept climbing poles until they found it. M. A. Kinch and T. Reilly, Duncan plant men, climbed 50 poles before they found the cause of the trouble. Once it was found it was a simple matter to get rid of it.

A. S. A. Approves 1929 Edition of the National Electrical Code.

The 1929 edition of the National Electrical Code has been declared an approved American standard by the American Standards Association. The code, originally drafted in 1897, has for 30 years been the basic guide for safe practices in the wiring of consumer premises for the use of electricity for light, heat and power. The forthcoming edition is the 15th revision of the original text. Fairly frequent and ofttimes extensive changes in its provisions are made necessary by rapid and new developments in the extent and ways in which science and industry make it possible for the public to take advantage of electricity's "niagaruan" energies.

The code was drafted by a sectional committee under the sponsorship of the National Fire Protection Association. The electrical committee contains 75 members and alternates representing 36 national and local organizations. These include federal, state and municipal officials, as well as men from eight sub-divisions of the electrical industry, from the fire insurance organizations and from general interests, such as architects and building owners.

The technical provisions of the new edition are not materially different from those of the former "approved" text. Certain new practices in wiring methods have secured recognition and a need for economies in other methods has been satisfied.

The publication and distribution of the National Electrical Code has always been undertaken by the National Board of Fire Underwriters as one way in which it contributes to safety in premises.

This co-operation will be continued with the 1929 edition of the code, notwithstanding that much of the new matter bears upon measures for securing added safety from shock.

Supplies of the new edition may be ordered from the American Standards Association, 29 West 39th Street, New York, or from the National Board of Fire Underwriters, 85 John Street, New York. Deliveries will probably be made on or about October 1.

Telephone Employes Picnic at Kitchell Park, Pana, Ill.

Employes of four telephone companies enjoyed a picnic recently, when approximately 400 representatives of the Illinois Consolidated Telephone Co., the Illinois Southeastern Telephone Co., the Arthur Mutual Telephone & Telegraph Co. and the Stewardson Telephone Co. gathered at Kitchell Park in Pana, Ill.

A general get-together was held from two until about five o'clock in the afternoon, when a delicious supper was served. During the progress of the supper the Mattoon telephone quartette gave several numbers which were sung into the microphone and broadcast over the grounds. An address of welcome was given by Mayor W. H. Alexander, followed by short talks made by R. A. Lumpkin of Mattoon, president of the Illinois Consolidated Telephone Co.; A. J. Parsons, secretary, Illinois Telephone Association, Springfield, and others.

About 30 Mattoon girls next formed a chorus and sang several songs, after which everybody assembled at the Bintz swimming pool and staged a bathing beauty contest. Mattoon carried off first honors when Miss Melba Basham of that city was adjudged the most beautiful girl contestant. Miss Basham was presented with a hand vacuum cleaner, the gift of the Graybar Electric Co. of St. Louis.

The picnic closed with dancing at the Pana Wings, a large pavilion south of Pana, where the committee on arrangements for the picnic had provided an orchestra.

Persian Telephone Service Supplied by Monopoly Company.

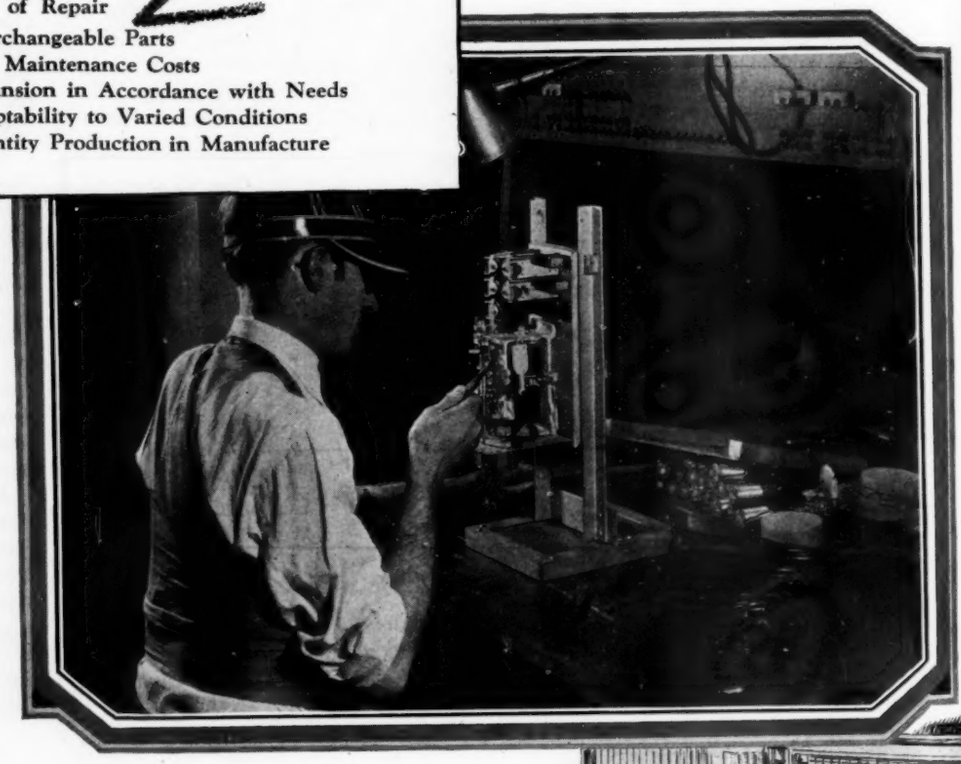
Telephonic communication in Persia is monopolized by the "Telephone Company of Persia," a joint stock company of which Arab Keikhosrow Shahrokh, the Zoroastrian deputy in Parliament is the chief shareholder.

The number of central stations in Persia at the end of the fiscal year March 21, 1929, totaled 33, kilometers of wire totaled 6,000 and telephones in service numbered 3,714, an increase of 323 telephones over the previous year, reports U. S. Consul Augustin W. Ferrin, Teheran, Persia.

Ease of Repair Chate Strowge

Small Unit Design, A Basic Strowger Principle, Gives Strowger Dial Systems These Advantages:

1. Interchangeable Switches
2. Ease of Repair
3. Interchangeable Parts
4. Low Maintenance Costs
5. Expansion in Accordance with Needs
6. Adaptability to Varied Conditions
7. Quantity Production in Manufacture



The views here shown illustrate the ease with which any Strowger Automatic switching unit can be lifted from the frame and taken to the work bench. Here it is mounted on a test frame, under perfect lighting conditions and accessible from all sides, where it can be repaired at the attendant's convenience.

STROWGE
DIAL S

aterizes
gutomatic Switch Design

IF a switching unit in a Strowger Automatic Dial Telephone System for any reason becomes impaired in operation, it is not necessary for the attendant to repair it from a ladder, or in an uncomfortable position or with insufficient lighting. Nor is it necessary for him to interfere with traffic when making a repair.

Due to Strowger small unit design, any switch is easily and quickly removed and taken to a work bench, where the trouble can be remedied at the attendant's convenience, and under ideal conditions of illumination and complete accessibility.

Coupled to this is the advantage that all moving parts of the Strowger Automatic system are on the switches themselves, and are of such design and strength that they will give many years of uninterrupted and carefree service. The design of all moving parts is also such that if, after years of service, they should require replacement, such renewals are easily and quickly made. Starting from the first with a simple and rugged design, and refined and perfected by forty years of application in thousands of exchanges, Strowger switches represent the utmost in long life, reliability and dependable daily service.

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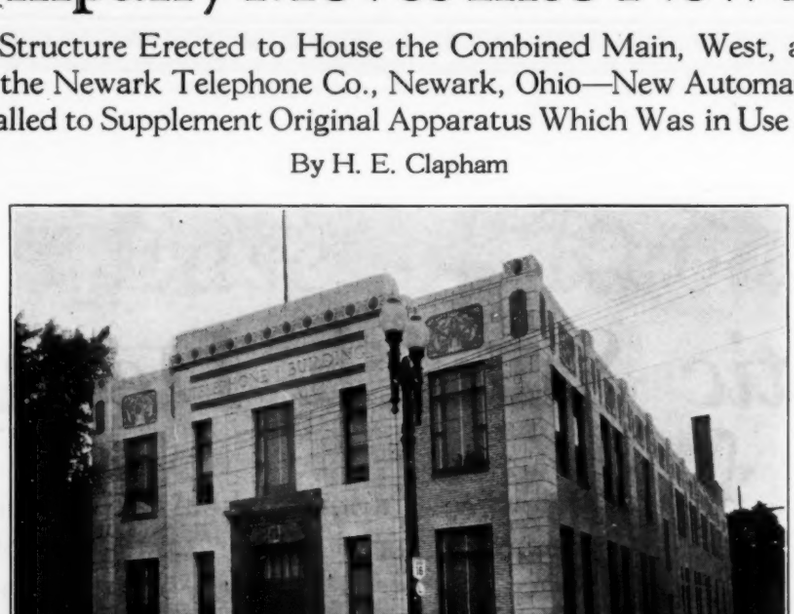
UTOMATIC
STEMS

Ohio Company Moves Into New Building

Beautiful Structure Erected to House the Combined Main, West, and North Offices of the Newark Telephone Co., Newark, Ohio—New Automatic Equipment Installed to Supplement Original Apparatus Which Was in Use Since 1911

By H. E. Clapham

The first and most important step in a far-reaching program of expansion and improvement has recently been completed by the Newark Telephone Co., Newark, Ohio, with the opening of its new building and the placing in service of new automatic equipment to work in conjunction with existing units moved from the old building.



Splendid New Telephone Building of the Newark Telephone Co., Newark, Ohio.

The Newark Telephone Co. began business almost 35 years ago with about 200 telephones and now has 9,000. In 1911, the entire city system, then serving some 3,000 telephones, was converted to automatic operation. During the years which have intervened from that time to the present, the city has thrived and the use which has been made of its telephone facilities has grown accordingly.

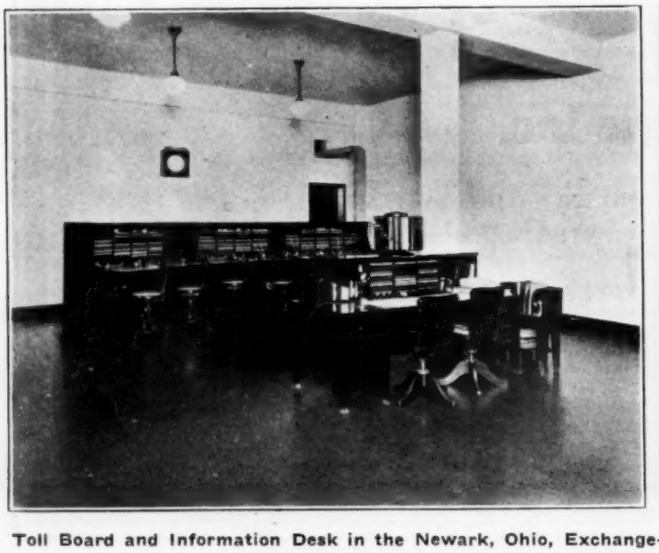
A year or so ago, because of the growing necessity for a radical expansion program to take care of the rapidly-growing traffic, the officials of the Newark Telephone Co. began consideration of plans for the erection of a telephone building which would be in keeping with the growing needs of the city, and in which could be housed a unified main office composed of the former Main office, the former West automatic sub-office, and the former North automatic sub-office.

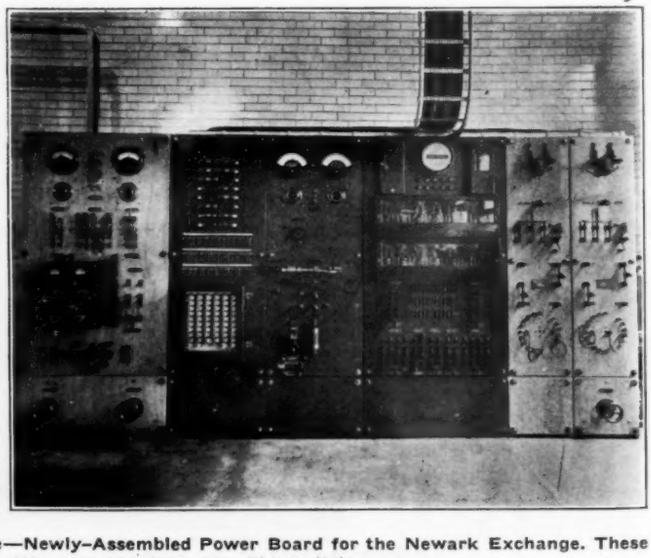
The first step in the new plan was realized on the night of July 3, 1929, when new Strowger automatic dial equipment, combined with certain of the former apparatus, was cut into operation at the new Main office. Every step of the conversion was carefully planned in advance, and was carried out with mathematical precision. The next and final step will occur during the first part of September, when the two sub-offices, West and North, will be discontinued and their load transferred to the new Main office.

The new telephone building is a decided asset to both the Newark Telephone Co. and the city of Newark. Occupying a space 178 feet by 55, the building is two stories in height, with provisions for an additional story when future expansion warrants its construction. White brick with terra cotta trim are used, with steel supporters, which combine structural solidity with unusual beauty of design. The front facade presents a pleasing contrast in materials with an architectural motif of simple, straight lines.

The Newark Telephone Co., of which W. L. Cary is president, is to be congratulated upon the construction of such an attractive and excellent building for carrying on its business of furnishing telephone service to the city of Newark. The interior finish is mahogany and walnut and the offices are arranged with a nicety of judgment in the selection of furnishings.

On the first floor of the new building are located the commercial and general offices. In the rear is a garage and the construction department quarters. On the





Toll Board and Information Desk in the Newark, Ohio, Exchange—Newly-Assembled Power Board for the Newark Exchange. These Panels, Except the Second and Third, Were moved from the Old Building.

second floor is the automatic switchroom, toll room, assembly room, restroom, kitchenette for the use of employes; and in the rear a repair shop. The spacious basement contains the battery room, gasoline engine charging set, fuel room, and ample storage space for surplus material.

The building is heated in the winter time by steam generated in a coal furnace which is fed by an automatic electric stoker. For spring and fall heating, there is a gas furnace. Heat is controlled by a thermostat on the second floor, so that a uniform temperature may be maintained at all times.

The new automatic equipment consists of 2,600 lines of primary line-switch equipment of the self-aligning plunger type. Supplied to operate in conjunction with this are six boards or rotary secondary line switches, six boards of selector equipment, and five boards of connector equipment. These boards are not at present fully equipped, but provide sufficient additional facilities, together with certain of the former equipment which is being used, to take care of the enlarged present telephone needs of Newark, with ample provision for future additions to supply adequate service for many years to come.

Auxiliary new equipment which has been installed includes a new main distributing frame, a new trunk intermediate distributing frame, a traffic relay rack, and intercepting trunk-ringing equipment. The present equipment at Main office, when the unification is completed, will total approximately 3,500 lines. This office, together with the East and Granville sub-offices, will give service to over 10,000 telephone users.

A new six-position toll and pay-station board has also been furnished and installed for the Newark Telephone Co. by Automatic Electric Inc. This board incorporates all of the newest features of operation, including C. L. R. operation. A two-position information and chief operator's desk, and a two-position test and complaint desk have also been furnished and installed to operate in conjunction with the above automatic equipment. All of these boards were cut into operation on the night of July 3, 1929.

Two charging rectifiers and the harmonic ringing equipment of the former main office have been incorporated in the new power arrangements for the new main office. In addition to this, a new gasoline engine generator set has been supplied to augment the power supply. This charging unit has a capacity of 60 amperes at 50 volts. A new storage battery has also been installed, which, together with necessary new additions to the power board and supervisory and control equipment, provides the new Main office with power arrangements ample for considerable future expansion in switching equipment.

The present East and Granville exchanges, which are both Strowger automatic dial sub-offices operated on an unattended basis, will be continued. The East office serves a fairly remote section of the town, and Granville is located some seven or eight miles from the main exchange, so it has been found economically desirable to retain these units as separate sub-operating centers as they now are.

The new building was formally opened to the public on August 2 and 3 on which days "open house" was held, the first day for residents of Newark and the second day for those living outside of the city.

Many of the 85 employes of the company were present to welcome the visitors who were also greeted by the directors and officials. The directors of the company include W. C. Metz, Dwight Warner, Charles H. Spencer, Dr. Harry H. Postle, T. J. Evans, W. C. Newton, S. C. Alsdorf, W. L. Cary and L. W. Easton.

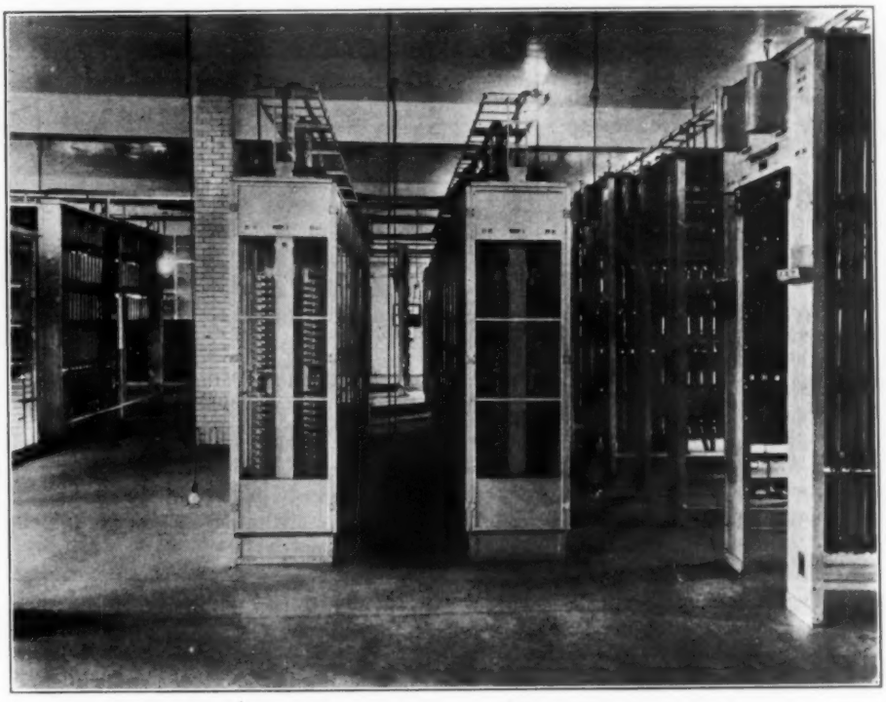
The officers and other officials are: W. L. Cary, president; Charles H. Spencer, vice-president; W. C. Metz, treasurer, and T. J. Evans, secretary. S. B. Settles is superintendent of service; S. C. Alsdorf, superintendent of construction; W. F. Fulkerson, superintendent of equipment, and L. W. Easton, auditor.

President W. L. Cary, to whom great credit is due for the company's present stable and prosperous condition, has been connected with the telephone business for 29 years. He was born and reared near Mt. Vernon, Ohio, and was admitted to the bar in 1888, practicing law in Mt. Vernon until 1900.

In the fall of that year he was made assistant counsel for the United States Telephone Co. and its subsidiaries, with headquarters in Cleveland, and in 1903 was made general counsel of the company and secretary of the 16 companies which later made up the Ohio State Telephone Co.

Upon the consolidation of the several companies and long distance lines making up the Ohio State Telephone Co., the general offices were moved to Columbus from Cleveland. In addition to his other duties as counsel of the company, Mr. Cary was secretary of the Ohio State Telephone Co. until the fall of 1921 when the Ohio State Telephone Co. was consolidated with the Ohio Bell Telephone Co.

About November 1, 1921, Mr. Cary was elected president of the Newark Telephone Co., and has continued as president and general manager of the company since then.



General View of the Automatic Switchroom at Newark, Ohio.

Telephone Cable from Bahamas to Florida Suggested.

Possibility of Great Britain laying a government telephone cable connecting Florida and the Bahama Islands is suggested in a report which the U. S. Department of Commerce has just received by mail from the American consul at Nassau, C. C. Broy.

"A company recently organized in Nassau," Consul Broy writes, "has sought a concession from the Bahama government to lay a cable from Nassau to some point in Florida. Tentative plans suggest the inclusion of a telephone cable."

Consul Broy says that now telegraphic communication with the outer world and between Nassau and other important islands of the Bahamas is maintained by a government-owned wireless station at Nassau and 18 small stations scattered among the other islands.

New Equipment at Memphis, Texas

Equipment Originally Installed in 1927 by The State Telephone Co. of Texas at Memphis Transferred to New Building — Many Improvements Shown— New Outside Plant Built — Nearly All Present Distribution Through Cables

By C. D. Kinne,

Assistant Manager, Kansas City Office, Stromberg-Carlson Telephone Mfg. Co.

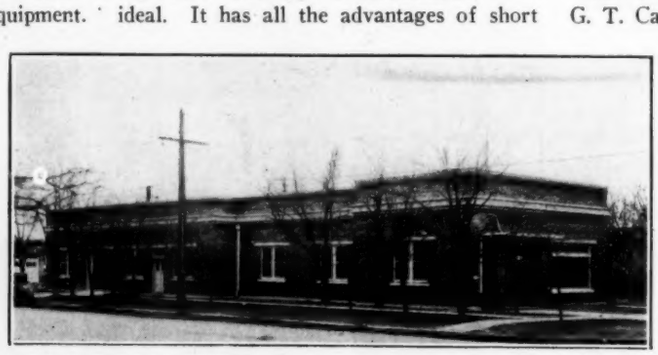
In 1927 the State Telephone Co. of Texas had installed in its Memphis exchange a six-position Stromberg-Carlson super-service switchboard with associated power, terminal and relay equipment. The equipment was ideal from an exchange standpoint, but the building was not so well adapted. It was necessary to have the switchboard, relay, cable and terminal apparatus in the same room, which is not generally considered good practice. At the same time, a good deal of the outside plant needed extensive repairs.

After about a year of operation under these conditions, the management, which consists of S. L. Odegard, president; A. L. Hart, vice-president; Sam R. Heffley, secretary-treasurer, and R. B. Fairly, general manager, decided to put the entire exchange, both inside and outside plant, in a strictly up-to-date condition.

A site was selected and plans drawn for a building suitable to house the exchange equipment and offices of the company, with plenty of garage space and work room. The building is a one-story brick structure following modern architectural lines. It occupies a lot at the corner of two busy streets and makes a valuable addition to the business buildings of Memphis.

A comparison of the photographs of the exchange switchboard and associated apparatus in the old location and in the new building shows the big improvement that has been made. The switchboard is now built into the partition between the operating room and the terminal room, whereas formerly, all equipment was in the same room.

Where the shape and size of the building allow this type of installation, it is ideal. It has all the advantages of short cable runs that the one-room type of installation gives, and in addition allows the maintenance man to work on the board without causing any disturbance in the operating room.



The New Exchange Building of the State Telephone Co. of Texas in Memphis, Texas.

One big improvement is clearly shown in the illustrations of the operating rooms. In the old room the face of the board was illuminated by low hanging, open lights, while in the new location, all lighting is indirect. This eliminates all glare and is much less fatiguing to the operators.

Credit for the artistic design and practical layout of the building should be given I. A. Lord, building engineer for the State Telephone Co. of Texas. He also supervised the construction to assure himself that every detail was carried out as he had planned.

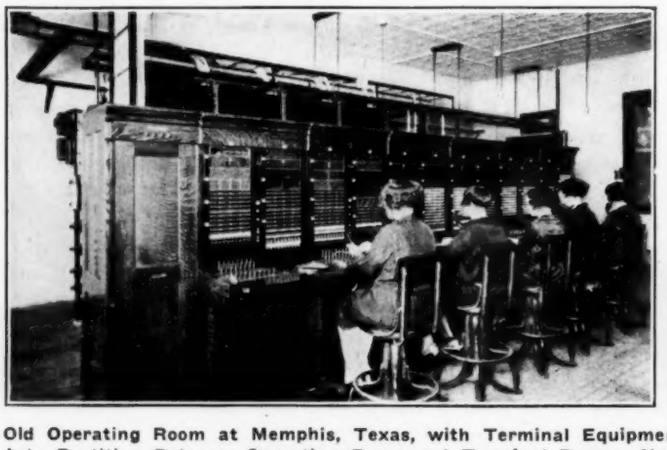
While the new building was under construction, the company's construction foreman, H. M. Ellis, built an entirely new outside plant. Nearly all of the present distribution is through cables.

As soon as the building was completed, G. T. Cartwright, the plant engineer, who had planned and supervised the outside construction work, started moving the central office equipment. In the moving and reinstalling of the apparatus Mr. Cartwright demonstrated what can be done by careful planning and attention to details.

In about three weeks, he had moved the six sections of the Stromberg-Carlson super-service switchboard, together with all the relay, terminal and power equipment, into the new location and connected it with the new outside plant. The remarkable feature of this work was that at the time of the cut-over, there was not a single case of trouble.

The opening of the new exchange and the cutting into service of the new distribution system was made quite an occasion. Mayor S. D. Harrison closed the switch that started the new exchange in operation. D. L. C. Kinard, city secretary and George R. Segar, secretary of the local Chamber of Commerce were also present at the ceremonies, in addition to company officials and neighboring exchange visitors.

The people of Memphis are happy over the efforts of their telephone company to increase the attractiveness of their city. The service has been very satisfactory judging from the compliments received from telephone users by the company.



Old Operating Room at Memphis, Texas, with Terminal Equipment in Same Room—New Operating Room with Switchboard Built Into Partition Between Operating Room and Terminal Room. Note Indirect Lighting of Switchboard Face in New Operating Room.

Features of New Public Telephone Station in New York City.

The first public telephone station with operator service yet to be installed in a Fifth Avenue office building north of Madison Square, New York City, was opened on the ground floor of the new Lefcourt National Building, at 521 Fifth Avenue, corner 43rd Street, on July 25 by the New York Telephone Co.

Equipped with 30 large, well-ventilated and lighted booths, the new station is one of the largest and finest in the city and constitutes another advance in providing telephone facilities completely in harmony with individual architectural treatment of buildings.

Eight booths attended by an operator are equipped with hand set telephones—the first instruments of this type ever to be installed in a public telephone station in New York City. The remaining 22 booths have coin telephones. Comfortable seats and writing shelves have also been arranged for the booths and a cabinet, conveniently located, has directories for out-of-town cities as well as for the local area.

German Scientific Society Hears Addresses Over Long Distance.

More than 1,200 members of the German Electrotechnical Society, holding their annual conference at Aix-La-Chapelle early this month, listened to addresses by corresponding members from The Hague, Budapest and Vienna through the medium of a telephone hookup and specially devised amplifying apparatus.

Professor Karl Kipernowsky, who addressed the delegates over a special wire from Budapest, as well as Director Beekman, who spoke through the telephone from The Hague, were plainly heard. Pictures of the various distant speakers were displayed on a screen during their respective discourses, which were disseminated by the loudspeakers. Telephonic transmission from the three distant points continued remarkably free from interfering noises and other disturbances, and the experiment was voted a complete success by the German experts.

New Systems of Sending Pictures by Radio or Telephone.

A new system of transmitting photographs by either radio or telephone, with portable sending and receiving instruments, capable of simultaneous general broadcasting has just been brought to the United States by its inventor, Captain Otho Fulton, an Englishman. The new device, called the Fultograph, is already in general use in Europe and has been adopted recently by the British War Office, Admiralty, Air Ministry and Weather Bureau, and by Scotland Yard.

Its feature of portability—the compact sending set can be transported at will and attached to any telephone wire—enlarges the range of usefulness of facsimile transmission almost without limit.

It already is being used for broadcasting weather charts for airmen twice daily by the British Air Ministry from the Daventry observatory. It now is in operation in British Army manoeuvres and is being considered for transmitting fleet and squadron orders by the British Navy. Scotland Yard contemplates its use for broadcasting photographs and descriptions of criminals.

Stock Exchange quotations, transmitted from the negative of a typewritten sheet, have been sent by it. It has been in use by British and Continental newspapers for many months.

The only telephonic pictures of the historic first meeting of Prime Minister Ramsay MacDonald and Ambassador Charles G. Dawes at Lossiemouth, Scotland, were transmitted by it over 600 miles of telephone line to London newspapers and broadcast there for reproduction in other British newspapers.

It takes four minutes to send a picture, the sending apparatus functioning direct from the negative. The receiver turns out a finished picture, which actually can be seen during reception. Hence there is the possibility of development for home use, with an attachment to the home radio. Both the sending and receiving apparatus are small enough to be housed in the rear seat of a small automobile.

"Its great features are portability, handiness, and cheapness," said Captain Fulton. "It works automatically, and hence is 'foolproof,' not requiring skilled engineering to manipulate."

Captain Fulton began work on his invention 20 years ago and brought it to completion within the last two years. He first introduced it on the Continent, where he now has laboratories at Paris, Berlin and Vienna, and factories in France and Germany.

He also has other laboratories and factories in England. It has been adopted for broadcasting use by the governments of France, Germany, Austria, Italy, Spain, Belgium, Holland and Poland, as well as Great Britain.

In Old Telephone Building in Memphis, Texas, Terminal Frames and Switchboard Were in Same Room—In New Building Access to Rear of Switchboard Is from the Terminal Room.

Hawaiian Islands to Have Radio Telephone Communication.

Telephone communication between the islands of the Hawaiian group is expected to develop from the visit of several radio engineers of the Radio Corp. of America. The radio-telephone will add to the present wireless communication system and will be controlled by the same company, the Mutual Telephone Co. Experiments have been under way for more than two years.

From Honolulu, capital and metropolis of the islands, to Hilo, county seat of the largest island, is 192 miles. Distances between other principal points are less. Radio telephone service is privately established now between offices of the Hawaiian Pineapple Co. at Honolulu and the island of Lanai, which is given over almost exclusively to pineapple growing.

It is also expected later to connect by radio telephone with San Francisco and other sections of the country.

With the Manufacturers and Jobbers

Stromberg Automatic Volume Control and Screen Grid Radio.

The advantage of reception at practically uniform volume of any desired intensity, through the use of an automatic volume control, is added to those inherent in improved screen grid circuits in the new No. 846 Stromberg-Carlson art console radio receiver.

"Linear" power detection—made possible by three screen grid tubes in the radio frequency stages—is used in this model for improved reception from high modulation broadcast stations; two of the new UX-245 tubes are used in push-pull for undistorted output at loud volume; and an improved dynamic speaker with a highly responsive diaphragm is built into the cabinet.

The tuning meter for visual tuning, essential with the automatic volume control feature, is conveniently located immediately above the single station selector knob, and both are illuminated. The more customary manual volume control knob is also provided.

Provision is made for using the high quality audio amplifier of this receiver for reproduction of phonograph records in conjunction with the new Stromberg-Carlson 3A flexible armature magnetic pick-up outfit. A jack in the rear of the chassis is so arranged that by turning the manual volume control completely "off," the pick-up is connected into circuit.

The cabinet which incloses the No. 846 receiver is of contrasting walnut and is extremely rich and distinctive. Its shape is half-octagonal using six supporting legs with a neatly-designed stretcher tying the bottom of these legs securely together. When the swinging doors are opened, their inside decoration blends neatly into the side pedestal effect of the cabinet. The control knobs for the radio receiver project through appropriate places in a delicate reproduction of hand-carved design of dogwood trees in bloom. As in all Stromberg-Carlsons, speaker, cabinet, and chassis are all carefully matched before their final assembly to give best over-all results in fine tone quality.

The Stromberg-Carlson No. 846 Receiver with Automatic Volume Control.

Southern California Telephone Co. Orders Nine More FDW Trucks.

Nine more FWD trucks have been purchased by the Southern California Telephone Co., Los Angeles, Calif. They include seven two-ton line construction trucks and two 3½-ton commercial utilities.

The two-ton trucks are to be equipped with 36 by 8-inch pneumatic tires, line construction body, HM derricks, single drum winch, ground jacks, towing hooks, speedometer, tire pump, cab and electric lights and starter.

The 3½-ton trucks are to be equipped with 38 by 9-inch pneumatic tires and single drum winch.

To Make Armored Cable; Underground Without Conduit.

Ground has been broken and work is being pushed on a new addition to the Hawthorne works of the Western Electric Co. It is being erected to house the manufacture of a new type of telephone cable. The structure will be 204 feet long, 95 feet wide and 40 feet high. It is scheduled for completion in December and will cost in the neighborhood of $175,000.

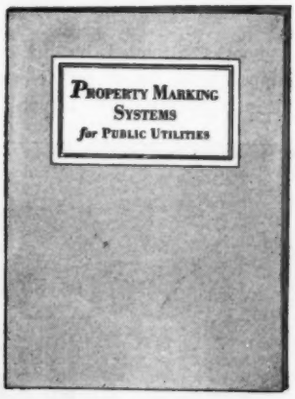
The armored cable to be manufactured in the new plant is a new type of land cable which can be laid in the ground without being protected by a conduit. Armored cable, it is stated, will be used underground in many places where aerial cable now is used.

The cable will be lead covered in the usual way. It will then be given its armor, which consists of one layer of paper, one or two layers of jute, depending on the size of the cable; a layer of steel tape, and two outside layers of jute. An asphalt impregnating compound makes the layers waterproof.

The Marking of Poles and Other Public Utilities' Property.

The methods used by leading telephone companies for marking poles, transpositions, terminals and other properties are fully described and profusely illustrated in a new book entitled, "Property Marking Systems for Public Utilities," published by the makers of Premax aluminum markers.

Written by a telephone company official who recognizes the need for better property identification, the book covers the legible and permanent marking of creosoted poles; the indicating of transpositions; marking cable terminals and terminal boxes; conveniently marking poles as they are set, and many other subjects.



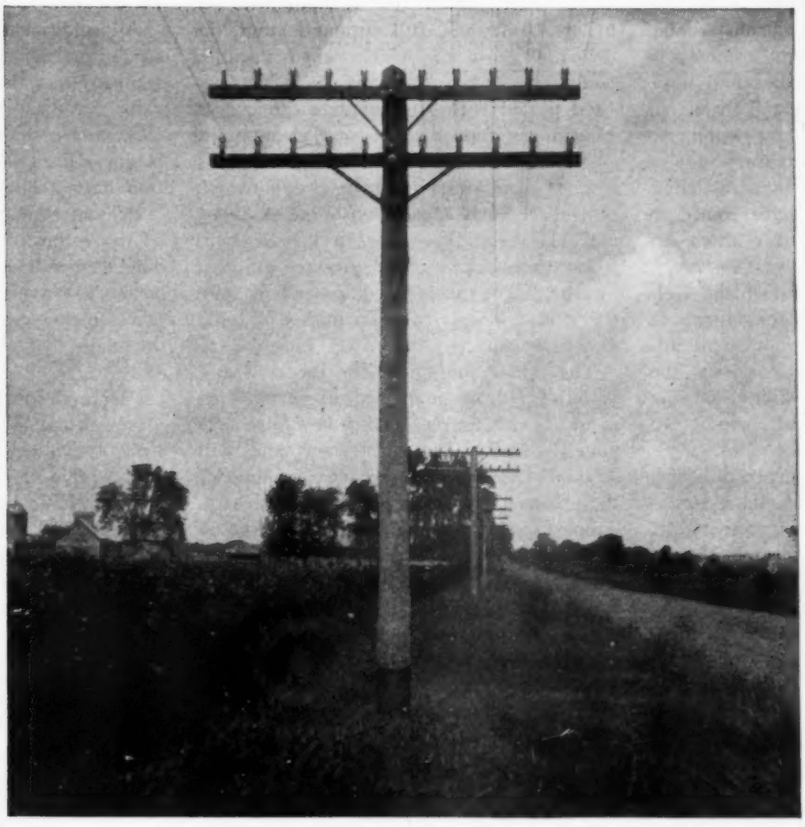
Book Which Contains Interesting Matter Concerning Pole Marking.

Telephone companies everywhere have standardized on aluminum letters and figures for property marking. These users find aluminum markers most economical, easiest to install, free from maintenance cost, most legible and permanent. They tell why in this new book, a copy of which will be mailed by requesting it from Premax Products, Inc., Niagara Falls, N. Y.

Kellogg Completes New Universal Switchboard Bulletin.

Demands for better and faster telephone service are increasing every day. The automobile and good roads have brought the smaller towns closer to the larger cities where common battery service is available. The day of the "one horse town" is past, and the people are justified in expecting superior telephone service. This situation has become a serious problem to all telephone companies. They must be able to give this kind of service to those who demand it and must be able to get the rates necessary to give it.

An effective answer to this problem is given in the bulletin recently completed by the Kellogg Switchboard & Supply Co., of Chicago, on the Kellogg universal switchboard. The Kellogg company has spent considerable time in studying and compil-



"P & H" Butt-Treated Poles in lines of Empire Telephone Co., Bradford, Illinois.

Uniformity in
"P & H Process" Poles

SO complete and exacting is the "P & H" Inspection System that unusual uniformity is assured in "P & H Process" Poles.

To eliminate every possibility of pole hazards and to protect the reputation of "P & H Process" Poles for dependability and long life, we take the extra precaution of making seven separate inspections of each pole during the several stages of production. To make doubly sure of delivering poles measuring up to the highest standards, we check eighty-five different points during these inspections.

Prompt shipment on all Cedar pole needs—
Northern White Cedar or Western Red Cedar.

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Omaha, Neb., 734 Electric Bldg.

When writing to Page and Hill Co., please mention TELEPHONY.

ing statistics of this important question.

The many efficient improvements incorporated in the universal board assure the high grade of service that people are beginning to appreciate, and are beginning to find a necessity in their homes and business houses. It has been found by actual experience that subscribers are willing to pay the increased rate necessary for a modern telephone system. In many cities a majority of subscribers have joined in petitioning the commission for rates assuring the new service.

Another interesting feature of the Kellogg universal switchboard explained in the new bulletin is that with a small initial investment the universal settles the question of finance by spreading out the cost to meet any need, and helping to salvage the old magneto telephones.

The mechanism of the universal board, method of construction and Kellogg equipment are illustrated by a complete set of photographs and diagrams attractively arranged in the new bulletin.

The Kellogg Switchboard & Supply Co., 1066 W. Adams St., Chicago, will furnish this instructive manual upon request.

New Exchange Office Unit at Fort Wayne, Ind.

An order for the initial equipment for a new 10,000-line, full automatic unit, the estimated cost of which when installed complete is approximately $600,000, has been placed with Automatic Electric Inc., of Chicago, by the Home Telephone & Telegraph Co. o Fort Wayne, Ind.

The installation of a new unit which will correspond in size with the Anthony and Harrison units now in operation, is made necessary by the growth of Fort Wayne. The present equipment in both the Anthony and Harrison offices is taxed almost to capacity.

The initial equipment for the new unit is scheduled to be placed in service coincident with the issue of a new directory June 1, 1930. The entire new unit will be housed in the Anthony office building of the Home Telephone & Telegraph Co. Ample space for the addition exists as company officials anticipated the need when the building was built a few years ago.

No name has been selected for the new office as yet. It is probable, however, that whatever name is selected will begin with "E" since that letter is conveniently placed on the dial.

An additional order for 500 lines of equipment for the Harrison office of the company has also been placed. This order calls for completion on about January 1, 1930, and includes 300 residence lines, 100 business lines and 100 semi-public pay station lines. The estimated cost is $40,000.

Present equipment in the Harrison office of the company also is taxed to capacity. The tremendous growth in the south end of Fort Wayne, which is served by that office, makes necessary the installation of the additional equipment.

Prices in the Metal Markets.

New York, August 12—Copper—Steady; electrolytic spot and future, 18c. Iron—Steady; No. 2 f.o.b. eastern Pennsylvania, $20.50@21.50; Buffalo, $17.50@18.50; Alabama, $13.50@14.50. Lead—Steady; spot New York, 6.75c; East St. Louis, 6.55@6.60c. Zinc—Steady; East St. Louis spot and future, 6.77@6.80c. Antimony—$8.62. Quicksilver—$124.00. Tin—Easy; spot $46.50; future, $47.00.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Progress Being Made on Chicago Franchise of Illinois Bell.

Officials of the Illinois Bell Telephone Co. agreed to give free service to the Chicago police and fire departments at a recent conference relative to a new franchise, with the council subcommittee headed by Alderman B. A. Cronson. This service, which would cost the city $50,000 annually, as well as service to all other city hall departments, is now furnished free under the terms of the franchise which expired last January.

Whether the city will obtain free telephone service in the city hall will not be settled until August 21, when the revised franchise and city ordinance will be submitted to the aldermen. The service to the hall is estimated at $55,000 annually and the total of $105,000 has been one of the main questions in dispute between the aldermen and the company.

New Members of Illinois Commerce Commission Announced.

On August 10 Governor L. L. Emmerson, of Illinois, announced the appointment of Charles W. Hadley, of Wheaton, as chairman of the Illinois Commerce Commission. At the same time he named five other commissioners who succeed commissioners appointed by former Governor Small and whose resignations were called for by Mr. Emmerson. A seventh member of the commission is still to be appointed.

These new commissioners are G. Gale Gilbert of Mount Vernon; J. Paul Kuhn of Batavia; and three Chicagoans: Walter H. Wilson, a vice-president and director of the Central Trust Co.; Philip W. Collins, an insurance broker who conducted the service men's end of the last state campaign, and William N. Brinkman, real estate agent and former member of the legislature.

The new chairman of the commission, Attorney Hadley, became known throughout the state, and even beyond its borders, when he won the state supreme court case that compelled ex-Governor Len Small to pay over $650,000 in settlement of the $1,000,000 suit based on charges that he had failed to account for that amount of interest on public funds while he was state treasurer.

In that case he was made special assistant attorney general by Edward J. Brundage and retained in that capacity by Mr. Brundage's successor, the present attorney general, Oscar E. Carlstrom. Mr. Hadley also added to his reputation in the prosecution of the murder and vice ring cases in the famous special investigation of Rock Island crime. Still earlier he served as state's attorney of DuPage county for 14 years.

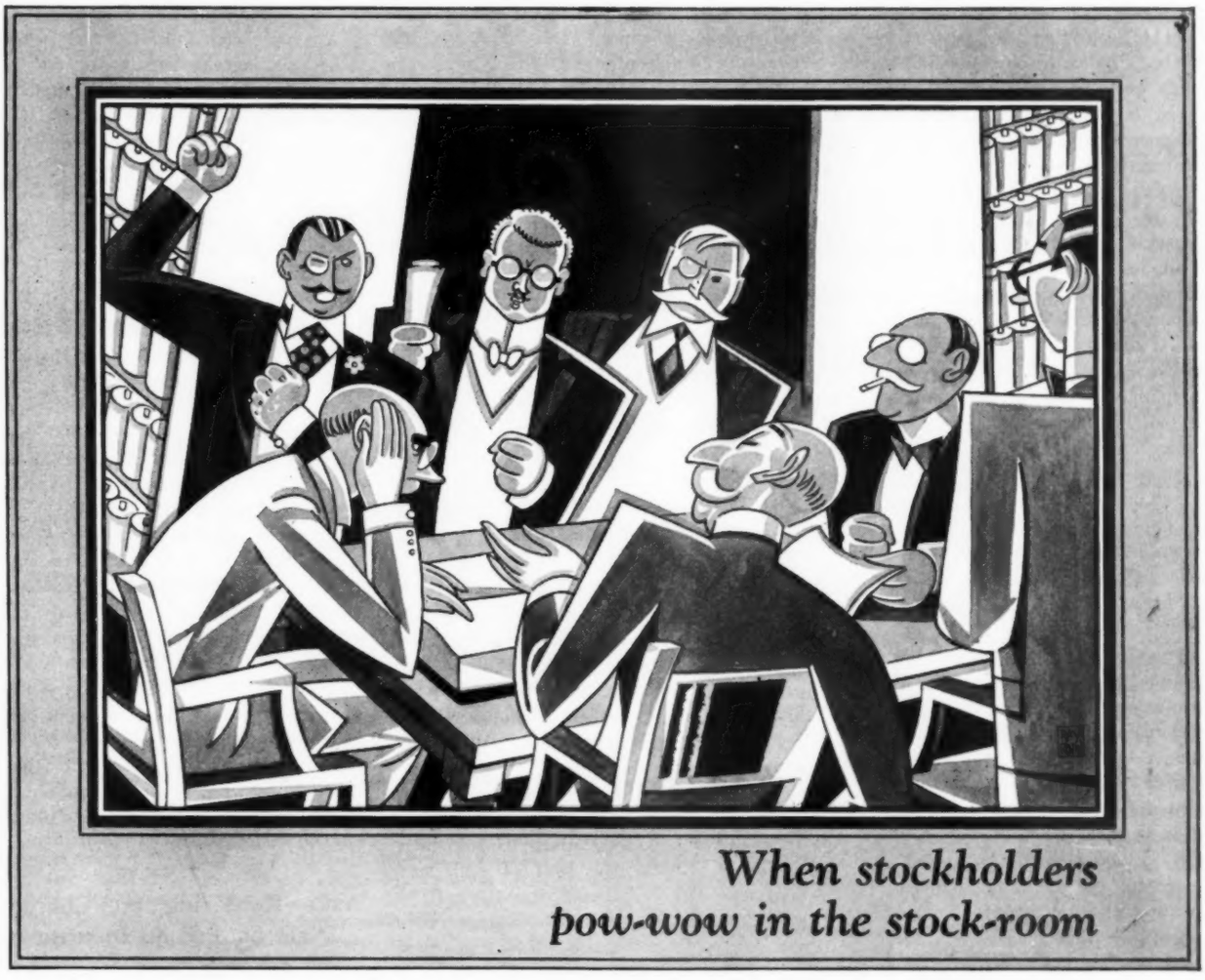
The new commission met at Springfield for organization on August 12 and announcement was made that all cases will be disposed of as rapidly as possible. After qualifying, the members went into conference and later in the day visited the governor at the executive mansion.

Although August is the vacation period for the commission, the new members will devote their time to making a study of pending cases and conditions in the department. By September 1 the commission will be in a position to hear cases and it is planned to hand down findings as rapidly as possible. Hearings will be held both at Springfield and Chicago, following the custom for years.

Laws Governing Securities Enacted by Five States.

None of several changes in the laws of Oklahoma governing the issuing and sale of stocks and bonds proposed in the recent general and special sessions of the legislature became law.

A survey of the general situation, just completed by the Investment Bankers' Association, however, indicates that laws were enacted in five states during the past legislative year for the purpose of regulating the issuance and distribution of securities. These states are Connecticut, Iowa, Kansas, Ohio and Vermont. Se-



When stockholders pow-wow in the stock-room

WASTE in stock-room makes bad medicine for stockholders' dividends. Columbia Gray Label Telephone Dry Cells waiting in stock-rooms conserve stockholders' investments. Inaction does not deplete their power because they contain no impure elements to produce wasteful internal circuits. These cells retain active life ready to jump into action at any instant. Increase telephone dividends by standardizing on Columbia Gray Label Telephone Cells.

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Unit of Union Carbide UCC *and Carbon Corporation*

Columbia
Telephone Batteries
Best by test—they last longer

curity legislation involved complete revision in these states.

Other states added to the existing law, generally along constructive lines of improvement, according to the survey referred to. Radically objectionable legislation has been the exception. In a majority of instances changes have been in accordance with recommendation of the Investment Bankers' Association.

A. T. & T. Co. Asks Renewal of Trans-Oceanic Radio License.

An application for renewal of its license to maintain trans-oceanic radio telephone communication was filed with the Federal Radio Commission, August 8, by the American Telephone & Telegraph Co. It was explained orally at the commission's offices that the license will expire October 1, 1929, and that renewal applications usually are filed well in advance of the date of expiration.

The application requested reassignment of the same five trans-oceanic frequencies now used by the company, with 15,000 watts of power.

Chesapeake Bell to Appeal on Tax Assessment in Baltimore, Md.

The Chesapeake & Potomac Telephone Co. will make a new fight to have its tax assessment of $7,408,630 reduced in Baltimore, Md.

Twice defeated in its efforts to gain a reduction, once in a hearing before the tax commission, and again in an appeal to the Baltimore city court, the company has announced it will carry its case to the Court of Appeals.

It is the contention of the company that it should not be assessed at more than 80 per cent of its property value. The lower courts have held that assessments are to be made as nearly as possible at 100 per cent valuation.

Valuation for Assessment Fixed on Arkansas Telephone Property.

The assessed valuation of the Southwestern Bell Telephone Co.'s property in Arkansas has been fixed at $5,551,685 by the Arkansas Tax Commission. The assessment is an increase of $217,005 over the valuation placed on the property last year. Lands and buildings were assessed at $219,675 and personal property at $5,332,010.

The commission also assessed the Western Arkansas Telephone Co. of Paris at $64,995 compared with $57,871 last year. S. A. Lane, of Little Rock, is president of this company.

Re-establishes Toll Connections to Certain Alabama Exchanges.

Orders were issued by the Southern Bell Telephone & Telegraph Co. on July 27 for the re-establishment of long-distance connection with towns in Alabama served by the South Central Telephone Co. The Alabama Public Service Commission was advised that the connections would be made without further delay.

Financial difficulties of the South Central company caused the Southern Bell company to discontinue its connections several months ago. The Southern Bell, with the consent of the public service commission, placed long distance telephones at centers in the towns so citizens would not be deprived of long distance service. However, this caused many complaints because users of telephones were forced to leave their homes and business establishments to communicate with residents of other cities.

A new company is now taking over the exchanges of the South Central company and the Southern Bell company entered into an agreement with it whereby service would be restored.

Company's Schedule Revised by Indiana Commission Order.

Complaints of patrons of the Richmond Home Telephone Co., Richmond, Ind., against alleged practices of the company in disconnecting service for delinquent settlement of advance bills and the imposition of $1 reconnection charge, resulted in an order August 9 by the Indiana Public Service Commission revising the company's schedule.

Under the order, the company will be permitted to make a collection charge of 25 cents on patrons failing to pay their telephone bills by the 10th of each succeeding month. The company also will be permitted to add a collection charge of 10 per cent on long distance toll bills not paid by the 10th of each month.

The order provides that service may be discontinued to patrons failing to pay their bills by the last day of the month for which the bill was sent in advance and to charge $1 for reconnecting. The commission's order revising the schedule was issued following receipt of an opinion from James M. Ogden, attorney-general.

Missouri Orders Audit of Exchange Revenues and Expenses.

Owing to the dissatisfaction of subscribers of the Unionville, Putman County, exchange with readjusted rates for service there, the Missouri Public Service Commission on August 5 ordered its accountants to make an audit of the revenues and expenses of the Middle States Utilities Co. operators of the exchange, to determine upon a basis for rate making. The audit of the income and operating expenses will cover a 12-month period.

Apparently the revised schedule of rates for Unionville recently ordered by the commission was not entirely satisfactory to all of the subscribers and protests against the schedule were filed.

The Unionville exchange was purchased by the Middle States Utilities Co. two years ago. The system was modernized and improved, being changed to common battery operation.

The Middle States company asserted its plant had been appraised at $104,000 and asked the increase on the strength of that. Engineers of the commission appraised the plant at something more than $60,000. The officials of Unionville regarded that as too high, believing it should be somewhere near $40,000 but the rate granted was based on the valuation fixed by the commission's engineers.

Missouri Company to Sell 2,500 Shares of Preferred Stock.

An order issued recently by the Missouri Public Service Commission gave the Capital City Telephone Co. of Jefferson City authority to issue and sell 2,500 shares of its 6 per cent preferred stock of the par value of $100 per share. This is to be sold at not less than par.

Proceeds of the sale of this issue of stock are to be used in construction of a new building to house the telephone plant and office, with new switchboards, conduits and new cables and general betterment of plant, all improvements made under the issue of stock to cost $227,250. The building and site will cost approximately $100,000.

Remainder of the proceeds of the stock sale will be used in liquidating short-term notes of the company, approximating $24,000 in total.

Asks Rehearing on Charge for Dials on P.B.X. Instruments.

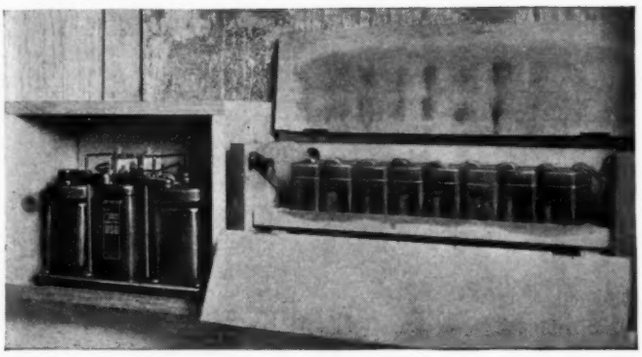
The Missouri Public Service Commission has been asked in a motion filed by City Counselor J. T. Muench of St. Louis, to grant a rehearing in the complaint of the city against the Southwestern Bell Telephone Co., recently dismissed by the commission in a ruling sustaining the 25 cents monthly charge for dials or instruments connected to private branch exchanges in the City of St. Louis.

Counselor Muench in his motion alleges various errors on the part of the commission in the ruling. He declares the 25-cent charge is for a service approximately not as valuable as manual operation.

That it constitutes an unlawful discrimination and is a discriminatory, arbitrary, compulsory and unreasonable rate.

It further is urged that the change from manual to mechanical operation in private branch exchanges in St. Louis was not made in response to the demands of customers, but on the company's initiative.

The petition for the rehearing declares that the commission, in dismissing the complaint of the city, gave more weight than the testimony in the case warranted to the supposition that a superior grade of service is furnished by mechanical operation and ignored by the company's own admissions that there was no immediate benefit antici-



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FANSTEEL
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Fansteel Trickle Charging is the most convenient and reliable source of telephone power. It requires practically no attention.

With Fansteel Trickle Charging, the storage battery is put on continuous charge from any AC source. The charging rate puts into the battery a little more power than is taken out of it by use. The battery is never removed from service. Should the power line fail, the battery has stored sufficient power to operate the board until the failure is corrected. Usually no charging noise is encountered; where it does exist, a simple filter circuit removes it. Fansteel Trickle Charging is today displacing the use of cable pairs for charging PBX batteries by reducing the cost of switchboard power.

Saves as much as 50% in cost

Fansteel Trickle Charging does away with duplicate batteries, with the need for an attendant, an occasional inspection only being necessary. In cases where cable pairs are now used for charging, the saving in power alone is as high as 50%, without considering the investment, loss of service and depreciation in cables.

Low initial cost

A Fansteel Charger is low in initial cost and simply installed. It is a permanent piece of equipment. It has no moving parts, causes no inductive disturbances in electrical circuits, operates under practically all extremes of weather, and requires no maintenance other than the infrequent addition of water.

Write for booklet describing the Fansteel Telephone Charger and for full information about new equipment recently developed. See how a Fansteel installation is now even more economical than in the past.

Don't fail to see the Fansteel Display in the American Electric Company booth at your local telephone convention.

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You learn about toll trunking, the nature and laws of telephone traffic, machine and automatic ringing, call distribution, trunk mechanical switching, mechanical-manual switching, etc.

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pated, but that economies in operation would result in seven or eight years.

It further is contended that use of dials in other cities is not comparable to St. Louis because of different conditions prevailing.

Nebraska Telephone Companies Face Assessment on Franchises.

State Tax Commissioner Scott of Nebraska has certified to county clerks in the state a completed assessed valuation of public service corporation franchises, totaling $4,888,812, never before assessed. State and local taxes will be levied against these franchise valuations in the different counties where the companies have property. One hundred and eighty companies are taxed on franchises as against two companies in 1928.

This valuation does not include an increase of $3,366,056, or a 25 per cent increase in the assessed valuation of the physical property of telephone companies, or an increase of $2,039,092 or 10 per cent in the assessed valuation of light and power companies, or an increase of 30 per cent, or $419,280, in the assessed valuation of the physical property of the two telegraph companies, the Western Union and Postal Telegraph, made by the state board.

Rates Increased Upon Petition of Majority of Subscribers.

Upon petition of 95 per cent of the subscribers of the Lincoln Telephone & Telegraph Co. at Fairmont, for the purpose of furthering a rebuilding and reconstruction program, the Nebraska State Railway Commission recently issued an order authorizing a monthly rate of $3.75 net for business telephones, $2.00 for residence telephones and $1.75 for two party residence telephones.

The revenue under the proposed rates will lack $448 of paying actual operating expenses, with no consideration given for a fair return on the investment, Chairman Curtis of the commission, stated.

The book cost of the exchange when completed will be approximately $45,000.

Appeals to State Supreme Court on Assessment Valuation.

Alleging that the Nebraska Board of Equalization acted arbitrarily, capriciously and illegally, the Lincoln Telephone & Telegraph Co. on August 10, obtained a writ of error from the acting chief justice of the Nebraska Supreme Court, commanding the state board to certify up to that court a transcript of its records for review of alleged errors.

The suit attacks only the 20 per cent increase in the assessed valuation of the company's real and personal property and is silent as to the board's action in assessing the company on a franchise valued by the board at $200,000.

The suit may serve as a test case for all telephone companies in the state whose property was assessed at nearly $17,000,000. It is the third suit against the board, Stanton county and two taxpayers having filed an appeal on error against a 10 per cent increase in the assessed valuation of cattle.

The Western Union Telegraph Co., the first to protest, has filed an injunction suit in the federal court against an increase in its property assessment and against any assessment on franchise.

In its petition and assignment of errors, the Lincoln company asks that the increased assessment on its property be vacated.

First, it is alleged that the state board exceeded its jurisdiction as it has power only to equalize as between counties.

Second, assuming it was equalized as by law required, it has power only to change the valuation of all property in the county or classes or kinds of property, but in fact it has attempted to act on the individual property of the plaintiff.

Third, the state board gave no notice to counties as required by section 5901 of the statutes.

Fourth, it discriminated between taxpayers.

Fifth, it acted illegally in increasing an assessment without giving a hearing and thus violates the due process of law guaranteed in the constitution.

It is alleged that the state board, in fact, has increased uniformly all assessments of all property of all telephone companies in all counties of the state, thus usurping the powers of the respective county assessing and equalizing authorities.

It is alleged that the Lincoln company will be assessed at a higher rate than other property, and discrimination results through the board's blanket increase, including all of the plaintiff's property, lands, buildings, all personal property, including automobiles, trucks, tools, furniture and fixtures, safes and other property.

It is alleged that the state board acted contrary to the statute which provides that real estate is not subject to reassessment until 1930.

The telegraph company contends that it hasn't any franchise in Nebraska and it doesn't need one, as it operates under the federal post roads act, which authorizes it to extend its wires over any part of the public domain.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

August 6: The Illinois Bell Telephone Co. and Harvard Telephone Co., both corporations of Illinois, filed an application asking for authority for the Illinois Bell company to buy the properties of the Harvard Telephone Co., Harvard, Ill.

The proposed purchase, the application states, will eliminate the division of telephone service in McHenry county, Illinois, and in and about the city of Harvard, and will permit unified service in the territory under one management and control.

August 9: Southern Bell Telephone & Telegraph Co. filed application for authority to purchase the telephone properties of the Fern Creek Telephone Co., located in Jefferson county, Ky., consisting principally of its exchange located in Fern Creek, Ky., and all exchange lines connected therewith.

CALIFORNIA.

August 3: Application of Public Utilities California Corp. to construct toll telephone and telegraph lines from Needles to various points in San Bernardino county, denied. The commission held that no adequate proof of public convenience and necessity for such lines was shown by the applicant.

September 27: Hearing in the matter of the establishing of an exchange in the vicinity of Westminster by the Associated Telephone Co. of Long Beach.

INDIANA.

August 9: Order issued revising schedule of Richmond Home Telephone Co., Richmond, upon complaints of patrons of the company against alleged practices of the company in disconnecting service for delinquent settlement of advance bills and the imposition of $1 reconnection charge.

August 22: Hearing in the matter of the application of the Southern Indiana Telephone & Telegraph Co. for authority to increase rates in Seymour.

KANSAS.

July 16: Central Kansas Telephone Co. authorized to file an amended schedule of rates providing charges for the various classes of service furnished by it at its exchange at Dighton. Individual line business is to be $2.50; individual line residence, $1.50; rural multi-party line business, $2.00; rural multi-party line residence, $1.50.

MISSOURI.

July 27: Petition filed by city of St. Louis asking for rehearing in city's complaint against Southwestern Bell Telephone Co. regarding charge of 25 cents for dial telephones connected to P.B.X.s.

August 3: Capital City Telephone Co. of Jefferson City authorized to issue and sell 2,500 shares of its 6 per cent preferred stock of the par value of $100 per share, to be sold at not less than par.

NEBRASKA.

August 8: Lincoln Telephone & Telegraph Co. authorized to place in effect a monthly rate of $3.75 net for business telephones and $1.75 for two-party residence telephones. Petition of 95 per cent of the subscribers, for the purpose of furthering a rebuilding and reconstruction program, led the commission to grant the order.

August 8: The Nuckolls County Independent Telephone Co. applied for authority to reconstruct its lines at Nelson, by converting the magneto type of equipment into common battery type and to increase rates.

August 8: The Lincoln Telephone & Telegraph Co. authorized to direct and publish and collect a rate of $1.75 for rural metallic service at its exchange at Edgar. The securing of such service is optional with the subscriber and shall not be provided by the applicant until not less than two-thirds of the subscribers on any farm line shall have expressed in writing, a desire for such improved service.

A similar order was granted the Lincoln company at its exchange at Ong, the service being optional with subscriber.

NORTH DAKOTA.

July 5: Complaint filed by Pretty Rock Telephone Co., Elgin vs. the Northern Power & Light Co. re interference caused by transmission line.

July 11: Findings issued in the matter

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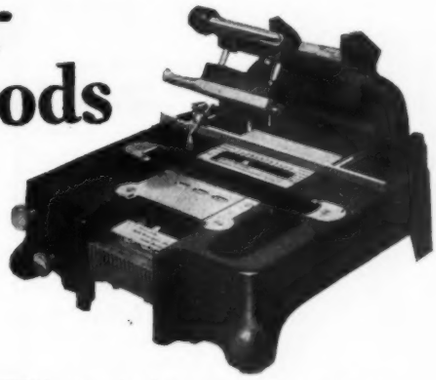

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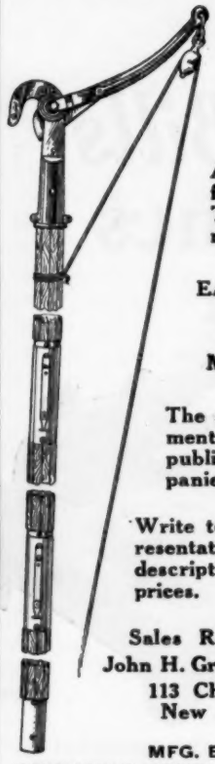

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Oakville, Conn:

of the application of the Clyde Mutual Telephone Co. of Clyde for authority to discontinue service in Clyde and application granted.

July 15: Joint application granted of Woodlake Telephone Co. of Tokio and Sheyenne Telephone Co. of Pekin to sell and buy, respectively, telephone poles and wires of the former company.

July 15: Joint application granted of the Northwestern Bell Telephone Co. and William Clifford to sell and buy, respectively, certain telephone property located in Emmons county and connected with the Hazelton switchboard.

OHIO.

July 31: Hearing at Columbus in the matter of the application of the Eaton Telephone Co. for increased rates. Commission will send its engineers to Eaton to check up on the inventory and appraisement filed by the company.

WISCONSIN.

July 30: Suring Telephone Co., Suring, authorized to increase its schedule of rates.

August 14: Hearing at West Bend on complaint of subscribers of the Newburg Telephone Co. that the service of the company is insufficient. The company is owned by the W. N. Albertson Co.

Condensed Telephone News

Companies Are Urgently Requested to Forward to Us Promptly News Concerning Construction, Rebuilding, Financing, Election of Officers, Sales and Purchases of Exchanges or Other Activities

New Incorporations and New Telephone Companies.

COVINGTON, IND.—Two county telephone corporations in Fountain county, Indiana, the Fountain Telephone Co. at Covington and the Stone Bluff Telephone Co., serving rural subscribers, are to be merged as shown by the articles of incorporation filed by the Fountain Telephone Corp. This has an initial capital stock of 924 shares having a par value of $50 each and is formed to buy or otherwise acquire, build, construct, own, use, operate and maintain telephone plants, exchanges and systems. Max F. Hosea, of Indianapolis, one of the incorporators, operates similar utilities in other parts of the state. John T. Detchon is owner of telephone companies in New Richmond, Attica, Greenfield, Waynetown and other Indiana cities.

IDAVILLE, IND.—Articles of incorporation have been filed with the secretary of state in Indianapolis by the Idaville Co-operative Telephone Co., Inc., with its principal place of business here. The corporation has an initial capital stock of 1,000 shares of no par value and is formed to "construct, build, establish and operate a telephone exchange." The incorporators are Marcellus McCall, Charles V. Hoover, Mack Sparks, Harry F. Foust and Charles H. Leeson.

LOCKPORT, LA.—The Golden Meadows Telephone & Telegraph Co., has been incorporated with a capital of $30,000 by Sidney Bourg, Lockport, and Paul Kurgweg, Morgan City.

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IT PAYS FOR ITSELF
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For the rigid requirements of Telephone Repeaters and Amplifiers, Special characteristics, together with longer life, insure a minimum "replacement" problem.

Grid, Plate and Filament are designed to produce *maximum* efficiency under actual operating conditions.

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SULLIVAN, OHIO—Papers have been filed with the secretary of state chartering the Sullivan Telephone Co., with a capital of 125 shares of stock with par value of each $20 for the purpose of acquiring and constructing a telephone exchange at Sullivan. The incorporators are Ira E. Garver, D. S. Houseman and Charles Campbell.

Franchises.

GRINNELL, IOWA—Citizens of Grinnell will vote in a special franchise election September 6 for a 25-year franchise for the Interior Telephone Co. of this city, it was announced recently. The entire cost of the election will be borne by the telephone company.

Financial.

FORT WAYNE, IND.—In exact figures $102,473.75 were paid to the common and preferred stock and bondholders of the Home Telephone & Telegraph Co. on July 1. Of this amount, $69,973.75 is the semi-annual dividend on the 7 per cent preferred stock paid to 1,225 stockholders.

Common stockholders received in quarterly dividends the sum of $17,500, which is at the rate of 7 per cent per annum; while the holders of the $500,000 6 per cent series A gold bonds received $15,000.

Construction.

MONTREAL, QUE., CANADA.—Quebec Telephone & Power Corp. is spending considerable money on extensions and improvements this year. It also is making progress on unifying the operations of three new subsidiaries acquired since the first of the year—the Peoples Megantic Telephone Co., St. Ephrem Telephone Co. and St. Joseph de Beauce Telephone Co. The company plans this year to build 21 miles of new line in Portneuf county.

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FOR SALE — One Holtzer-Cabot Motor Generator Set, direct current Generator, Type M, Size 30, Kilowatts 30, Volts 60, Amperes 500, Speed 1200; Compound Wound Motor, 220 Volts, 60 Cycle. For further information and price address The Lima Telephone and Telegraph Company, Lima, Ohio.

FOR SALE—Telephone Exchange, 210 stations; good farming territory; construction better than average. Pays $300 per month. G. L. Griffin, Carlton, Texas.

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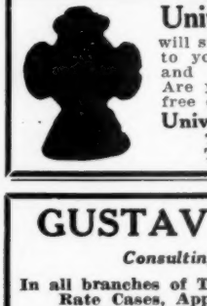
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ELDORADO, ILL.—The Illinois Commercial Telephone Co. is rebuilding its entire local telephone system.

GENESEO, ILL.—The installation of telephone cables here by the Geneseo Cooperative Telephone Co. is progressing rapidly.

THOMSON, ILL.—Extensive improvements in the telephone system is being made by the Northwestern Illinois Utilities in this vicinity. New poles and crossarms are being placed and metallic circuits throughout will be used.

LEWISTOWN, MO.—The Central West Missouri Telephone Co. is installing a new telephone system in this place.

SAN MARCOS, TEXAS—Work of repairing and extending its rural lines, and facilitating service in the rural districts, is being rushed by the San Marcos Telephone Co., according to Merton Swift, manager. More than $2,000 will be spent by the company on its rural lines, Mr. Swift stated. Entire replacement will be made in some instances.

Miscellaneous.

JAMESTOWN, IND.—A. J. Roberts of Kansas City, has contracted for the purchase of 51 per cent of the Peoples' Cooperative Telephone Co. of this place. The valuation of the entire plant is fixed at $16,500 being $366.66 per share.

ROCKVILLE, IND.—E. P. Millikin, who has been manager at Rockville, Ind., for the Indiana Bell Telephone Co., has been transferred to work out of the district office at Clinton. Mr. Millikin will continue to live in Rockville.

MELBOURNE, IOWA—The telephone lines here of the Rhodes Telephone Co. have been purchased by the Central Iowa Telephone Co.

SAC CITY, IOWA—The Central West Public Service Co. has purchased the telephone exchanges at Holstein and Cushing.

BENSON, MINN.—The Swift County Telephone Co., the property of local interests since 1894, is to be sold to the Pioneer Telephone Co. of St. Paul, according to an announcement by local officials of the company.

W. X. Jones will continue as manager of the company. Present officers and members of the company are Dr. C. L. Scofield, president; S. H. Hudson, secretary; Julius Holland, treasurer; Edgar Simenstad, wire chief; Mrs. W. X. Jones, chief operator and office manager; Frank Bond, Fred Simenstad, Carl Arne, linemen. At present there are five stockholders in the company.

HIGHTSTOWN, N. J.—The New Jersey Bell Telephone Co. has purchased the Farmers & Traders' Telephone Co., one of the last of the small Independent telephone lines in the state. This was learned here recently unofficially from reliable sources.

The Farmers & Traders' Telephone Co. has about 1,300 subscribers in this section and has exchanges at Hightstown, Plainsboro and Cranbury with connecting toll lines.

GREENPARK, PA.—The Perry County Telephone & Telegraph Co. has been purchased by Ralph Van Trine for $51 per share and also the Pfoutz Valley Telephone Co. for $21 per share. Both of these properties were under the management of R. J. Makibbin.

LATAH, WASH.—Since August 1, the business of the Latah Telephone Co. exchanges has been handled jointly by James W. Wood, who has for many years been operator at Latah and Charles N. Tyson of the Fairfield telephone system. The exchange will be operated at Fairfield. Mr. Wood will supply the actual service while Mr. Tyson will keep the lines, instruments and other equipment in order.

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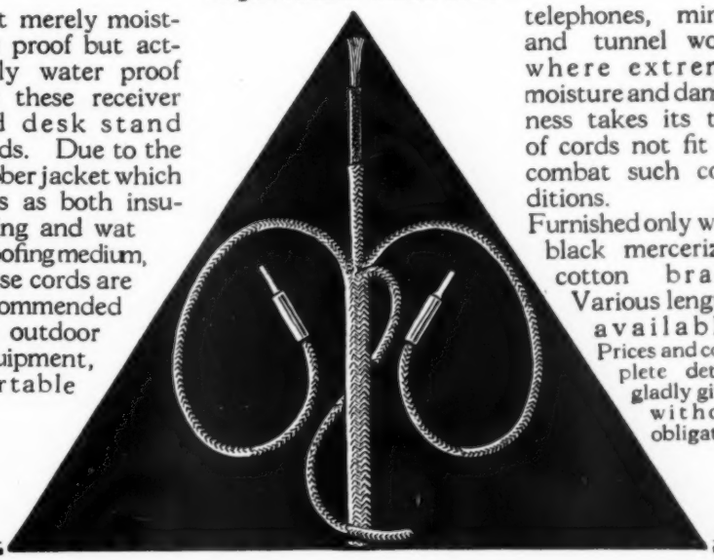

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Kellogg No. 742 Common battery steel hotel sets with straight line or 16-33-50 and 66 cycle ringers @....	6.75
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Dean No. 240 type 3-bar 1000 ohm Bdg. compacts with Kellogg Transmitter @	6.75
Dean No. 240 type 4-bar 1000 or 1600 ohm compacts, Kellogg Transmitters, @	7.50
Am. Elec. No. 36 4-bar 1000 ohm Bdg. compacts with Kellogg Transmitters @	6.50
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WANTED — Experienced Traveling Auditor for Telephone Work. Must have had experience with commercial offices and systems of Telephone Companies. State past experience and qualifications, as well as salary expected. Address 7553, care of TELEPHONY.

WANTED—Several accountants with Telephone accounting experience for growing Telephone Company. State salary expected, qualifications, experience and references fully in first letter. Replies confidential. Address 7554, care of TELEPHONY.

WANTED—Cable splicer, for work in Iowa. Must be capable in all classes of work. Address 7556, care of TELEPHONY.

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We Have Them. Write for prices.

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Stromberg-Carlson Common Battery Desk Sets

988 or 986 type desk stands with steel bell boxes, code No. 1132.

Straight Line $5.50

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FOR SALE

TWO CONDUCTOR new black silk desk stand cords, 25c; W. E. No. 47A fuses, $6.00 per 100; W. E. No. 14 terminal, 16 pair less stubs @ $3.00; No. 17 parallel bronze drop wire, $6.50 per 1000 feet; Stromberg-Carlson P. B. X. jacks, keys and relays, very cheap. Prices on request.

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FOR SALE—1 2-position Toll and 4-position Local Kellogg
C. B. Associated Line Lamp Switchboard equipped with
20 Toll Universal Cord Circuits
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30 Toll Line Circuits—Drops and Jacks
520 Local Line Circuit, complete with line and cut off relays.

1 30-Ampere A. T. Type Rectifier
1 Power Board
1 Chief Operator's Desk
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All in good condition.

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POSITION WANTED — Practical telephone man desires a position as manager of a small exchange. Can take care of plant as well as managerial duties. Have had twelve years' experience; married. Prefer West or Northwest. Address 7550, care of TELEPHONY.

POSITION WANTED—By competent and reliable man with thorough educational and practical experience. Familiar with the appraisal, financing, acquisition and management of telephone properties. Salary based on ability to produce results. Address 7551, care of TELEPHONY.

IOWA MAN—Wants short time jobs installing cable, locating and repairing trouble, cable or switchboard. Geo. A. Bishton, Box 645, Cedar Rapids, Iowa.

POSITION WANTED—Cable splicer desires work. 15 years' experience. References. Address: Cable Splicer, 717 South Third St., Terre Haute, Ind.

POSITION WANTED—By maintenance man who thoroughly understands common battery and magneto plants. Six years' experience. Age 26 and married. Desires connection with reliable company in Iowa, Illinois or Minnesota. References. Address 7557, care of TELEPHONY.

See Page 42